

Chapter 9

Packaging and Labelling requirements

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Food packaging

Packaging is the art and science of encasing food products to safeguard them during distribution, sale, and storage. It is also the process of designing and evaluating packages. Product packaging design not only lends aesthetic appeal, but also helps your products stand out from those of others. Proper packaging plays a crucial role in preservation of quality and delivery of safe, wholesome food products to the end user. Packaging has been with humans for thousands of years in one form or the other. Packaging dates back to when people first started moving from place to place. Originally, skins, leaves, and bark were used for food transport. Mesolithic humans used baskets, and neolithic humans used metal containers and discovered pottery. Four thousand years ago, sealed pottery jars were used to protect against rodents, and in 1550 BC, glass making was an important industry in Egypt. Tin-plating iron became possible in AD 1200, and as steel replaced iron this method became useful after AD 1600. In 1825, Oersted first extracted aluminum. More recently, plastics were developed, particularly the first commercial plastics in the United States around 1935–1942. Over the last three decades, packaging has grown in volume and importance into one of the most significant areas of food production.

Purpose of packaging

Packaging performs five main functions (5Ps): product containment, preservation and quality, presentation and convenience, protection, and provide storage history.

1. **Product containment:** The primary purposes of packaging are containment and protection. Containment refers to holding goods in a form suitable for transport, whereas protection refers to safekeeping goods in a way that prevents significant quality deterioration.
2. **Preservation by maintaining quality:** The second function of packaging is to control the local environmental conditions to enhance storage life and safety.
3. **Presentation and convenience:** Displaying the product in an attractive manner to the potential buyer is very important. For a package to be effective, it must present the product well and should do its own publicity. In many cases, packaging provides convenience to the consumers. Eating styles, such as ready-to-eat meals, snacks, and microwaveable ready meals, have been changed over the years, which need innovation in packaging. For children, the packaging might represent innovation or fun. Other conveniences could be ease of opening, smaller portions and tamper-proof methods.
4. **Protection during distribution and processing:** The fourth function is to protect the product during transit to the consumer. Packaging can handle better when there are challenges in food distribution chain, such as heat, humidity, or dew. It is important to be aware of the distribution challenges and designing of package to suit it.

5. **Provide storage history:** Time-temperature indicator (TTI) is effective for predicting microbial concentrations and other parameters of food quality during shipping and storage. It helps in ensuring proper handling and provides a gauge of product quality for sensitive products in which temperature control is imperative to efficacy and safety. TTIs are tags that can be applied to individual packages or shipping cartons to visually indicate whether a product has been exposed to time and temperature conditions that adversely affect the product quality. TTI could be used in chilled foods to identify the temperature abuse during storage and distribution.

Types of Packaging Materials

From skins, leaves, and bark, tremendous progress has been made in the development of diversified packaging materials and in the packaging equipment. In general, packaging materials may be grouped into rigid and flexible structures.

- **Flexible materials:** Plastic film, foil, paper and textiles are flexible materials.
- **Rigid materials:** Wood, glass, metals and hard plastics are examples of rigid materials.

Food Labelling

A label displays information regarding the product, which is typically printed on the packaging. It is a piece of paper, polymer, cloth, metal, or other material affixed to a container or article. A label may also be printed directly on the container or article. A label not only describes the product and its uses, but also provides instructions and crucial precautionary measures (if any) that need to be taken care of. It essentially informs consumers of the properties of a product.

Codex Alimentarius International Standards (FAO & WHO)

General standard for the labelling of prepackaged foods CXS 1-1985 (Revised in 2018)

This standard applies to the labelling of all prepackaged foods to be offered as such to the consumer or for catering purposes and to certain aspects relating to the presentation thereof.

General principles

Prepackaged food shall not be described or presented on any label or in any labelling in a manner that is false, misleading or deceptive or is likely to create an erroneous impression regarding its character in any respect. Prepackaged food shall not be described or presented on any label or in any labelling by words, pictorial or other devices which refer to or are suggestive either directly or indirectly, of any other product with which such food might be confused, or in such a manner as to lead the purchaser or consumer to suppose that the food is connected with such other product.

Mandatory labelling of prepackaged foods

The following information shall appear on the label of prepackaged foods as applicable to the food being labelled, except to the extent otherwise expressly provided in an individual Codex standard.

1. The name of the food
2. List of ingredients

The following foods and ingredients are known to cause hypersensitivity and shall always be declared:

- Cereals containing gluten; i.e., wheat, rye, barley, oats, spelt or their hybridized strains and products of these;
 - Crustacea and products of these;
 - Eggs and egg products;
 - Fish and fish products;
 - Peanuts, soybeans and products of these;
 - Milk and milk products (lactose included);
 - Tree nuts and nut products; and
 - Sulphite in concentrations of 10 mg/kg or more.
3. Net contents and drained weight
- The net contents shall be declared in the metric system (“Système International” units). The net contents shall be declared in the following manner:
- (i) for liquid foods, by volume;
 - (ii) for solid foods, by weight;
 - (iii) for semi-solid or viscous foods, either by weight or volume
4. Name and address
- The name and address of the manufacturer, packer, distributor, importer, exporter or vendor of the food shall be declared.
5. Country of origin
6. Lot identification
7. Date marking and storage instructions
8. Instructions for use

Additional mandatory requirements

- Quantitative ingredients declaration
- Irradiated foods: The label of a food which has been treated with ionizing radiation shall carry a written statement indicating that treatment in close proximity to the name of the food. The use of the international food irradiation symbol, as shown below, is optional, but when it is used, it shall be in close proximity to the name of the food.



Food packaging regulations in US

In US, the food packaging regulations are enforced by FDA (Food and Drug Administration). The FDA charged with monitoring food safety requirements carries out risk assessment as well as risk management regarding food safety and packaging. Food, Drug and Cosmetic Act 1958 enforced by the FDA is the basic regulation for Food Contact Materials (FCM).

Food packaging regulations in European Union

There is a coexistence of national legislation and community level legislation in the European region for food packaging and FCM. The regulations are directly effective in the member states. The same needs to be transposed by national parliaments for making it more effective. The EU Framework Regulation EC 1935/2004 is used for regulating the food contact materials at Union level.

Food packaging regulations in Middle East Region

The Gulf Cooperation Council (GCC) comprises of the UAE, Bahrain, Kuwait, Oman, Qatar and Saudi Arabia as its member nations. The standards and technical regulation with respect to food packaging, for GCC nations, comes under the purview of GCC Standardization Organization (GSO). These standards and regulations are also followed by Yemen. There are various standards developed by GSO, which the GCC nations must implement voluntarily. The standards must be adopted into national law to have legal effect in the Member States and Yemen.

Food packaging regulations in India

Food Safety and Standards Authority of India (FSSAI) is an autonomous body established by the Government of India under the Ministry of Health & Family Welfare. It usually sets standards for food so that there is no chaos in the minds of consumers, traders, **manufacturers** and investors. Since the FSSAI is the authority on all food-related things in India, FSSAI registration and observance of FSSAI rules is a must.

Food Safety and Standards (Packaging) Regulations, 2018

General requirements

- Every food business operator shall ensure that the packaging material used shall be in accordance with these regulations: Provided where Indian Standards are not available, then relevant International Standards may be complied with.
- Any material which comes in direct contact with food or likely to come in contact with food used for packaging, preparation, storing, wrapping, transportation and sale or service of food shall be of food grade quality.
- Packaging materials shall be suitable for the type of product, the conditions provided for storage and the equipment for filling, sealing and packaging of food as well as transportation conditions.
- Packaging materials shall be able to withstand mechanical, chemical or thermal stresses encountered during normal transportation. In case of flexible or semi-rigid containers, an overwrap packaging may be necessary.
- Food products shall be packed in clean, hygienic and tamper-proof package or container.
- The sealing material shall be compatible with the product and the containers as well as the closure systems used for the containers
- Tin containers once used, shall not be re-used for packaging of food
- Plastic containers of capacity 5 litre and above and Glass bottles, which are reused for packaging of food, shall be suitably durable, easy to clean or disinfect
- Printing inks for use on food packages shall conform to IS: 15495
- Printed surface of packaging material shall not come into direct contact with food products
- Newspaper or any such material shall not be used for storing and wrapping of food

- In case of multilayer packaging, the layer which comes in direct contact with food or layers likely to come in contact with food shall meet the requirements of packaging materials specified in Schedule I, II and III of these regulations.
- The materials listed in Schedule I, II and III of these regulations shall be compatible with their intended use as a packaging material so as not to alter the quality and safety of the food product.
- Every food business operator shall obtain the certificate of conformity issued by NABL accredited laboratory against these regulations, for the packaging material, which comes in direct contact with food or layers likely to come in contact with food to be used.

Specific requirements for primary food packaging

There are specific requirements for primary food packaging materials intended to come in contact with food products like paper and board, glass containers, metal and metal alloys and plastic materials.

Specific requirements for plastic materials

1. Plastic materials used for the manufacturing of containers for packing or storing the food products shall conform to either of the Indian Standards specifications as provided in Schedule – III

Migration limits for plastic packaging materials

2. All packaging materials of plastic origin shall pass the prescribed overall migration limit of 60 mg/kg or 10 mg/dm² when tested as per IS 9845 with no visible colour migration.
3. Plastic materials and articles shall not release the substances in quantities exceeding the specific migration limits (mg/Kg) as given below.

Barium	1.0
Cobalt	0.05
Copper	5.0
Iron	48.0
Lithium	0.6
Manganese	0.6
Zinc	25.0
Antimony	
Phthalic acid, bis (2-ethylhexyl) ester (DEHP)	1.5

4. Pigments or Colorants for use in plastics in contact with food products and drinking water shall conform to IS: 9833
5. Products made of recycled plastics including carry bags may be used for packaging, storing, carrying or dispensing of food products as and when standards and guidelines are framed by the Food Authority. Such packaging materials shall also comply with any other national standards/regulations as applicable

Schedule – IV: List of suggestive packaging materials

Fish and fish products or Seafood

- Glass jars with plastic (PP or High-density polyethylene (HDPE) caps
- Metal Containers with metal lid (lacquered tin containers)

- Polyethylene terephthalate (PET) punnets or containers with plastic caps
- Plastic-based multi-layered flexible laminates heat sealed pouches
- Plastic tray with overwrap

Food safety and standards (labelling and display) regulations, 2020

These regulations prescribe the labelling requirements of pre-packaged foods and display of essential information on premises where food is manufactured, processed, served and stored.

Labelling of pre-packaged foods: General Requirements

1. Every pre-packaged food shall be labelled with information as required under these regulations unless otherwise provided.
2. When a food product is sold through e-commerce or any other direct selling means, the mandatory requirements of the label as given in these regulations shall be provided to the consumer through appropriate means before sale.
3. Pre-packaged food shall not be described or presented on any label or in any labelling in a manner that is false, misleading or deceptive or is likely to create an erroneous impression regarding its character in any respect.
4. Any information or pictorial device written, printed, or graphic matter may be displayed on the label provided that it is not in conflict with the requirements of these regulations.
5. The particulars of declaration required under these Regulations printed on the label shall be in English or Hindi.
6. Label on pre-packaged foods shall be applied in such a manner that it will not become separated from the container.
7. Contents on the label shall be clear, unambiguous, prominent, conspicuous, indelible and readily legible by the consumer under normal conditions of purchase and use.
8. Where a package is provided with an outside container or wrapper and such container or wrapper is displayed for retail sale, it shall also contain all the declarations which are required to appear on the package except where such container or wrapper itself is transparent and the declarations on the package(s) are easily readable through such outside container or wrapper.

Labelling Requirements

Every package shall carry the following information on the label, namely, -

(1) The Name of Food: Every package of food shall carry name of the food, which indicate the true nature of the food contained in the package, on the Front of Pack:

- (a) Where a food is specified by certain essential composition under Food Safety and Standards Regulations made under the Act, that establishes its identity the name provided therein shall be used;
- (b) In the absence of such name, either a common or usual name or an accompanying description of true nature of food shall be used;
- (c) It may additionally have a “coined”, “fanciful”, “brand” or “trade name” subject to compliance of Food Safety & Standards (Advertising and Claims) Regulation 2018.

(2) **List of Ingredients:** Except for single ingredient foods, a list of ingredients shall be declared on the label.

(3) **Nutritional information:** Nutritional Information per 100 g or 100 ml or per single consumption pack of the product and per serve percentage (%) contribution to Recommended Dietary Allowance calculated on the basis of 2000 kcal energy, 67 g total fat, 22 g saturated fat, 2 g trans-fat, 50 g added sugar and 2000 mg of sodium (5 g salt) requirement for average adult per day, shall be given on the label.

(4) **Declaration regarding Veg or Non veg**

Non-Vegetarian Food: The symbol shall consist of a brown colour filled triangle inside a square with brown outline.

Vegetarian Food: The symbol shall consist of a green colour filled circle, having a diameter not less than the minimum size specified, inside the square with green outline having size double the diameter of the circle.



(5) Declaration regarding Food Additives

(6) Declaration of name and complete address

(7) FSSAI logo and license number: The FSSAI logo and license number under the Act shall be displayed on the label of the food package in contrast colour to the background as below:



Fortified food and organic food shall be marked with the logo as specified in the schedule of these regulations. FSSAI may specify logo for any other food as decided from time to time.

1. Every package of fortified food shall carry the words “fortified with (name of the fortificant)” and the logo, as specified below, on the label. It may also carry a tag line “SampoornaPoshanSwasth Jeevan” under the logo.



Fortified with....
SAMPOORNA POSHAN
SWASTHA JEEVAN

.... से फोर्टिफाइड

सम्पूर्ण पोषण स्वस्थ जीवन

2. Every package of certified organic food as per Food Safety and Standards (Organic Foods) Regulations, 2017 shall carry the logo as specified below:



(8) Net quantity, Retail Sale Price and Consumer Care details

(9) Lot/Code/Batch identification

(10) Date Marking: "Date of manufacture or packaging" and "Expiry/Use by" shall be declared on the label. However, expression "Best before" may also be used as optional or additional information.

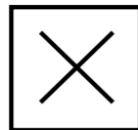
(11) Labelling of Imported Foods

(12) Country of Origin for Imported Foods

(13) Instructions for use

(14) Declaration regarding Food allergen

(15) Every package of food material sold in retail, but which is not meant for human consumption shall bear a declaration to this effect by a symbol. The symbol shall consist of a black colour cross inside a square with black outline having the sides of square not less than the minimum size specified.



Principal display panel. - (1) The information required under these regulations shall be given on the principal display panel of the package or container and such information may be given in following

manner, - (a) All information should be grouped together and given at one place. Or (b) The pre-printed information be grouped together and given in one place and, Online information or those not pre-printed be grouped together in another place.

Conclusion

Food labelling and food packaging help the consumers in differentiating between various foods and finding out the best products matching their requirements. It's crucial for all the food business operators carrying out their business in India to abide by the FSSAI's Food Packaging and Labelling Regulations. There is a significant demand for getting FSSAI license or registration in India in order to run a food business. Food Labelling serves as a primary link of communication between the manufacturer and consumer and covers both food safety and information of consumer interest.