

LABELLING AND REQUIREMENTS OF A LABEL

A label is defined as any label, mark, sign, device, imprint, stamp, brand, ticket, or tag. Package labelling is any written, electronic, or graphic communication on the package or on a separate but associated label. Container refers to a receptacle, package, wrapper, or confining band in which a product is offered for sale. A label displays information about a product on its container, packaging or the product itself. The type and extent of information that must be impacted by a label is governed by the relevant safety and shipping laws.

Labels can be divided in four types. They are brand label, grade label, descriptive label and informative label. If only brand is used on package of a product, this is called brand label. It tells the name of the product. Grade label is applicable on some types of products and represents the quality of the product. Descriptive labels give information about the feature, using instruction, handling, security etc. of the products and informative label gives information about the product such as directions for use and security of the product, name of the producer, manufactured date, expiry date, name of intermediary, additional instructions regarding the use of the product etc.

Functions of a Label

The primary function of labelling is communication.

- A brand is a name, picture, design, or symbol, or combination of those items, used by a seller to identify its offerings and to differentiate them from competitors' offerings. The label helps consumers to identify the brand of the product. It is always prominently displayed on the label.
- Depending on the product, a label convey information such as care and use of the product, recipes or suggestions, ingredients or nutritional information, product guarantees, manufacturer name and address, weight, expiration dates and warnings.
- Labels also must fulfil legal obligations. Different countries place certain legal requirements and restrictions on both labelling and packaging. In certain markets, requirements are in place concerning the ecological impact of packaging and labelling materials.

a. Information transmission – Packages and labels communicate how to use, transport, recycle, or dispose of the package or product. With pharmaceuticals, food, medical, and chemical products, some types of information are required by government legislation. Some packages and labels also are used for track and trace purposes. Most items include their serial and lot numbers on the packaging, and in the case of food products, medicine, and some chemicals the packaging often contains an expiry/best-before date, usually in a shorthand form. Packages may indicate their construction material with a symbol.

b. Marketing – Packaging and labels can be used by marketers to encourage potential buyers to purchase a product. Package graphic design and physical design have been important and constantly evolving phenomena for several decades. Marketing communications and graphic design are applied to the surface of the package and often to

the point of sale display. Most packaging is designed to reflect the brand's message and identity.



Many types of symbols for package labelling are nationally and internationally standardized. For consumer packaging, symbols exist for product certifications, trademarks, and proof of purchase. Some requirements and symbols communicate aspects of consumer use and safety. Examples of environmental and recycling symbols include the recycling symbol, the resin identification code, and the "green dot".



Indicates that an object is capable of being **recycled** -not that the object has been recycled or will be accepted in all recycling collection systems. Sometimes this symbol is used with a percentage figure in the middle to explain that the packaging contains x% of recycled material.



Dispose of this carefully and thoughtfully. Do not litter. This doesn't relate to recycling, but is a reminder to be a good citizen, disposing of the item in the disposal box.

Bar Coding

A barcode is an optical, machine-readable representation of data; the data usually describes something about the object that carries the barcode. Traditional barcodes systematically represent data by varying the widths and spacing of parallel lines, and may be referred to as linear or one-dimensional (1D). Later, two-dimensional (2D) variants were developed, using rectangles, dots, hexagons and other geometric patterns, called matrix codes or 2D barcodes, although they do not use bars as such. Initially, barcodes were only scanned by special optical scanners called barcode readers. Later application software became available for devices that could read images, such as smartphones with cameras. The barcode was invented by Norman Joseph Woodland and Bernard Silver and patented in the US in 1952.

Importance of bar coding

Barcodes are often overlooked as a method for cutting costs and saving time. A valuable and viable choice for businesses looking to improve efficiency and reduce overhead, barcodes are both cost-effective and reliable.

1. Barcodes eliminate the possibility of human error. The occurrence of errors for manually entered data is significantly higher than that of barcodes. A barcode scan is fast and reliable, and takes infinitely less time than entering data by hand.
2. Using a barcode system reduces employee training time. It takes only minutes to master the hand-held scanner for reading barcodes. Furthermore, employees do not have to gain familiarity with an entire inventory or pricing procedure. This also makes employee training less expensive, since they do not have to be paid for extra training time, and another employee does not have to be compensated for training them.
3. Barcodes are inexpensive to design and print. Generally they cost mere pennies, regardless of their purpose, or where they will be affixed. They can be customized economically, in a variety of finishes and materials.
4. Barcodes are extremely versatile. They can be used for any kind of necessary data collection. This could include pricing or inventory information. Additionally, because barcodes can be attached to just about any surface, they can be used to track not only the products themselves, but also outgoing shipments and even equipment.
5. Inventory control improves. Because barcodes make it possible to track inventory so precisely, inventory levels can be reduced. This translates into a lower overhead. The location of equipment can also be tracked, reducing the time spent searching for it, and the money spent replacing equipment that is presumed lost.
6. Barcodes provide better data. Since one barcode can be used for inventory and pricing information, it is possible to quickly obtain data on both. Furthermore, barcodes can be customized to contain other relevant information as needed. They provide fast, reliable data for a wide variety of applications.
7. Data obtained through barcodes is available rapidly. Since the information is scanned directly into the central computer, it is ready almost instantaneously. This quick turnaround ensures that time will not be wasted on data entry or retrieval.

8. Barcodes promote better decision making. Because data is obtained rapidly and accurately, it is possible to make more informed decisions. Better decision making ultimately saves both time and money.

Both inexpensive and user-friendly, barcodes provide an indispensable tool for tracking a variety of data, from pricing to inventory. The ultimate result of a comprehensive barcoding system is reduction in overhead.

Types of bar coding (UPC and EAN)

UPC (Universal Product Code)

UPC barcodes are used to label and scan consumer goods at points of sale around the world—mainly in the United States, but also in the United Kingdom, Australia, New Zealand and other countries. One of the most commonly used barcode symbologies, and arguably the most recognized barcode type by consumers due to the widespread use of UPC codes in retail settings. 12-digit UPC codes (UPC-A) contain basic information about the manufacturer's identity and the identification number for the product, but more information can be gained by looking up UPC codes with a service such as UPC Database or GTIN, which is the official bar code assignment organization in the United States. Each digit's position reveals the type of information those numbers refer to, a standardized process that makes it possible to decipher UPC codes that did not originate within a specific company. The UPC-A variation encodes 12 numerical digits, while UPC-E is a smaller variation that encodes only 6 numerical digits.

- Industry: Retail
- Variations: UPC-A, UPC-E



EAN (European Article Number)

The International Article Number (also known as European Article Number or EAN) is a standard describing a barcode symbology and numbering system used in global trade to identify a specific retail product type, in a specific packaging configuration, from a specific manufacturer.

EAN barcodes are also used to label consumer goods worldwide for point-of-sale scanning, primarily in Europe. They look very similar to UPC codes, and the main distinction is their geographical application. While EAN-13 (comprising 13 digits) is the default form factor, you'll find EAN-8 (covering eight digits) barcodes on products where space is very limited, like small candies. Interestingly, while many retail locations scan product UPC codes, scanners typically convert UPC codes to the 13-digit EAN format.

- Industry: Retail
 - Variations: EAN-13, EAN-8, JAN-13, ISBN, ISSN
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QR Codes

QR codes, which stand for ‘quick-response code,’ are among the most widely recognized two-dimensional barcodes thanks to their widespread use for bridging the gap between the digital world and the real world. QR codes were first developed in 1994 by Denso, a company that’s part of the Toyota group of companies. The QR code is capable of encoding up to 2,509 numeric or 1,520 alphanumeric characters and has three levels of error-detection built in. It also can encode Latin and Japanese Kanji and Kana characters, music, images, URLs, emails. QR codes are a minimum of 21×21 cells but can increase in size in increments of 4×4 cells up to a maximum size of 105×105 cells. You’ll find QR codes on everything from cereal boxes to posters, advertisements, and even museums, beverage cups, library books, and more. The most frequently used type of code to scan with smart phones.



LEGISLATION FOR ENSURING SAFETY OF FOOD PACKAGING MATERIALS

Packaging

General Requirements

1. A utensil or container made of the following materials or metals, when used in the preparation, packaging and storing of food shall be deemed to render it unfit for human consumption:—

- (a) containers which are rusty;
- (b) enameled containers which have become chipped and rusty;
- (c) copper or brass containers which are not properly tinned
- (d) containers made of aluminium not conforming in chemical composition to IS:20

specification for Cast Aluminium & Aluminium Alloy for utensils or IS:21 specification for Wrought Aluminium and Aluminium Alloy for utensils.

2. Containers made of plastic materials should conform to the following Indian Standards Specification, used as appliances or receptacles for packing or storing whether partly or wholly, food articles namely :—

- (i) IS : 10146 (Specification for Polyethylene in contact with foodstuffs);
- (ii) IS : 10142 (Specification for Styrene Polymers in contact with foodstuffs);
- (iii) IS : 10151 (Specification for Polyvinyl Chloride (PVC), in contact with foodstuffs);
- (iv) IS : 10910 (Specification for Polypropylene in contact with foodstuffs);
- (v) IS : 11434 (Specification for Ionomer Resins in contact with foodstuffs);
- (vi) IS: 11704 Specification for Ethylene Acrylic Acid (EAA) copolymer.
- (vii) IS: 12252 - Specification for Poly alkylene terephthalates (PET).
- (viii) IS: 12247 - Specification for Nylon 6 Polymer;
- (ix) IS: 13601 - Ethylene Vinyl Acetate (EVA);
- (x) IS: 13576 - Ethylene Metha Acrylic Acid (EMAA);
- (xi) Tin and plastic containers once used, shall not be re-used for packaging of edible oils and fats;

Provided that utensils or containers made of copper though not properly tinned, may be used for the preparation of sugar confectionery or essential oils and mere use of such utensils or containers shall not be deemed to render sugar confectionery or essential oils unfit for human consumption.

3. General packaging requirements for Canned products

- (i) All containers shall be securely packed and sealed.
- (ii) The exterior of the cans shall be free from major dents, rust, perforations and seam distortions.
- (iii) Cans shall be free from leaks.

Product Specific Requirements Legislations

I. Packaging requirements for Milk and Milk Products

(a) Bottling or filling of containers with heat-treated milk and milk product shall be carried out mechanically and the sealing of the containers shall be carried out automatically.

(b) Wrapping or packaging may not be re-used for dairy products, except where the containers are of a type which may be re-used after thorough cleaning and disinfecting.

(c) Sealing shall be carried out in the establishment in which the last heat-treatment of drinking milk or liquid milk-base products has been carried out, immediately after filling, by means of a sealing device which ensures that the milk is protected from any adverse effects of external origin on its characteristic. The sealing device shall be so designed that once the container has been opened, the evidence of opening remains clear and easy to check.

(d) Immediately after packaging, the dairy products shall be placed in the rooms provided for storage.

II. Packaging requirements for Edible oil/ fat:

Tin Plate used for the manufacture of tin containers for packaging edible oils and fats shall conform to the standards of prime grade quality contained in B.I.S. Standards No. 1993 or 13955 or 9025 or 13954 as amended from time to time and in respect of Tin containers for packaging edible oils and fats shall conform to IS No. 10325 or 10339 as amended from time to time.

III. Packaging requirements for Fruits and Vegetables Products

(i) Every bottle in which any fruit product is packed shall be so sealed that it cannot be opened without destroying the licensing number and the special identification mark of the manufacture to be displayed on the top or neck of the bottle.

(ii) For Canned fruits, juices and vegetables, sanitary top cans made up of suitable kind of tin plates shall be used.

(iii) For Bottled fruits, juices and vegetables, only bottles/ jars capable of giving hermetic seal shall be used.

(iv) Juices, squashes, crush, cordials, syrups, barley waters and other beverages shall be packed in clean bottles securely sealed. These products when frozen and sold in the form of ice shall be packed in suitable cartons. Juices and Pulps may be packed in wooden barrels when sulphited.

(v) For packing Preserves, Jams, Jellies, and Marmalades, new cans, clean jars, new canisters, bottles, chinaware jars, aluminium containers may be used and it shall be securely sealed.

(vi) For Pickles, clean bottles, jars, wooden casks, tin containers covered from inside with polythene lining of 250 gauge or suitable lacquered cans shall be used.

(vii) For Tomato Ketchups and Sauces, clean bottles shall be used. If acidity does not exceed 0.5% as acetic acid, open top sanitary cans may also be used.

(viii) Candied fruits and peels and dried fruits and vegetables can be packed in paper bags, cardboard or wooden boxes, new tins, bottles, jars, aluminium and other suitable approved containers.

(ix) Fruits and Vegetable products can also be packed in aseptic and flexible packaging material having food grade quality conforming to the standards laid down by BIS.

IV. Packaging requirements for Canned Meat Products

(i) New sanitary top cans made from suitable kind of tin plate shall be used. The cans shall be lacquered internally; they shall be sealed hermetically after filling. The lacquer used shall be sulphur resistant and shall not be soluble in fat or brine.

(ii) Cans used for filling pork luncheon meat shall be coated internally with edible gelatin, lard or lined with vegetable parchment paper before being filled.

(iii) Meat products packed in hermetically sealed containers shall be processed to withstand spoilage under commercial conditions of storage and transport.

V. Packaging requirements for Drinking Water (Both Packaged and Mineral Water)

It shall be packed in clean, hygienic, colourless, transparent and tamperproof bottles/containers made of polyethylene (PE) (conforming to IS: 10146 or polyvinyl chloride (PVC) conforming to IS : 10151 or polyalkylene terephthalate (PET and PBT) conforming to IS : 12252 or polypropylene conforming to IS : 10910 or foodgrade polycarbonate or sterile glass bottles suitable for preventing possible adulteration or contamination of the water. All packaging materials of plastic origin shall pass the prescribed overall migration and colour migration limits.