



PM Formalisation of Micro Food Processing Enterprises Scheme

Processing of Malta Syrup



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CHAPTER 1

INTRODUCTION

1.1 About

Malta (*Citrus sinensis*) is an orange-coloured fruit. Malta fruit is a hybrid of grapefruit and orange. It's grown commercially in tropical, subtropical, arid-irrigated and mountains regions in varying soil and weather conditions. It is known by many names in different parts of the world like Sweet Orange, Blood Orange etc. Commonly called as “sangtra” in India, Malta is a round-shaped, medium-sized fruit, weighing an average of 142.3 grams. The flesh is yellow to orange and may be very sweet. Fruit centres are solid (not hollow as in the sour orange). It has a rough-surfaced orange rind covered in small oil glands.

As a species, sweet orange is thought to have originated in southern China, north-eastern India, and Southeast Asia. The orange has become the most commonly grown tree fruit in the world, commercially cultivated in the Far East, South Africa, Australia, throughout the Mediterranean, and subtropical areas of North, Central, and South America and the Caribbean.



Varieties

Jaffa: Bigger sized fruits, round in shape with yellowish orange skin colour. 9-12 seeds are present in single fruit.

Sathukudi: Fruits are medium in size. Juice is totally acid less with 10% TSS.

Valencia Late: Medium size, oval shaped fruit. At ripening the colour of skin turns to golden yellow.

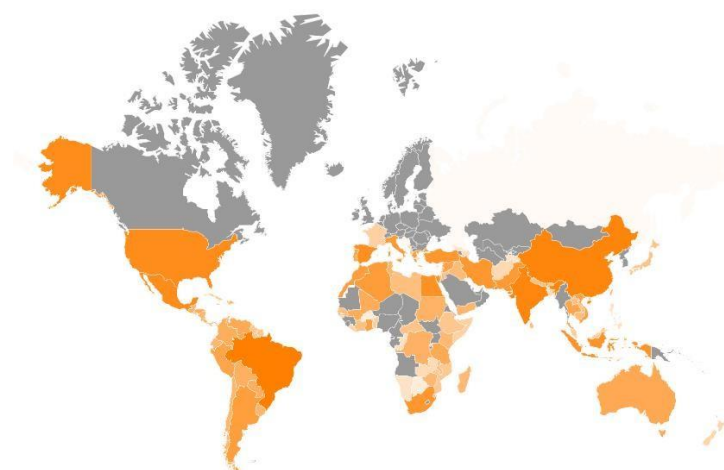
Blood Red: Fruits are medium-sized. Deep orange colour fruits at maturity with red colour flesh.

Pineapple: Medium-size juicy fruits. 10-20 Seeds are present per fruit.

1.2 Market Status

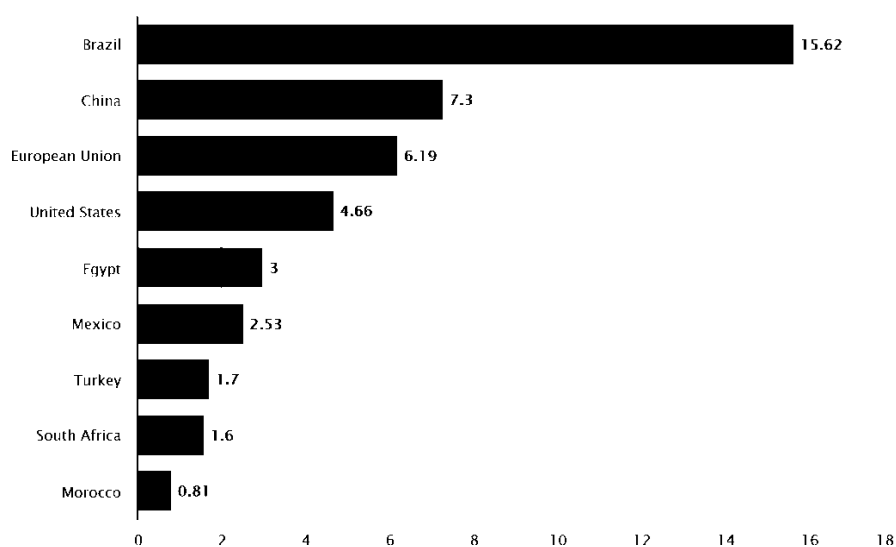
World Scenario

Global orange production for 2020/21 is forecast to rise 3.6 million metric tons (tons) from the previous year to 49.4 million as favourable weather leads to larger crops in Brazil and Mexico, offsetting declines in Turkey and the United States. Consequently, consumption, fruit for processing, and fresh exports are also forecast higher.



World leading Orange Producing Countries

Leading producer of Oranges in the year 2019-2020 was Brazil, China, EU, USA, Mexico and others. (Source: USDA)



Leading orange producing countries worldwide in 2019/2020 (in million metric tons)

Indian Scenario

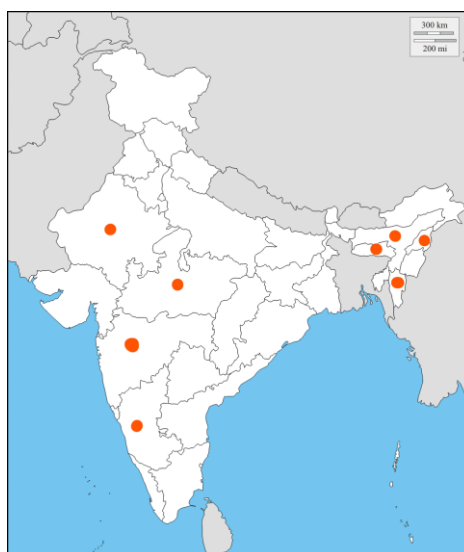
As per Third Advance Estimates 2019-20, India's orange output has been pegged at 63.97 lakh tonnes from the total land under Orange (Mandarin Orange/Kinnow) of 4.79 Lakh Hectare.

There is no declining trend in Orange production in the country, as may be seen in the table below.

(in Lakh Tonne)			
	2017-2018	2018-2019	2019-2020 (3rd Advance Estimate)
All India Production	51.01	62.43	63.97

(Source: NHB)

Major states involved in Orange production are Madhya Pradesh, Punjab, Maharashtra, Rajasthan and Haryana and North eastern states.



Export

Oranges' worth over two billion Indian rupees was exported from India to Bangladesh in fiscal year 2020, making the neighbouring country the leading importer of oranges. Nepal followed with 337 million rupees worth of fresh and dried orange exports from the India.

1.3 Health Benefits of Malta Fruit

1. Promotes healthy skin

Malta Oranges are positively packed with vitamin C, which helps the body synthesize collagen, a protein that's crucial for building healthy skin. Oranges' high beta-carotene content also helps your body create and process vitamin A, which aids in skin cell growth.

2. Rich in vitamins and plant compounds

Citrus fruits are an excellent source of vitamin C, a nutrient that strengthens the immune system and keeps skin smooth and elastic. Citrus fruits also have good amounts of other vitamins and minerals that body needs to function properly, including B vitamins, potassium, phosphorous, magnesium and copper. Additionally, they are rich in plant compounds that have various health benefits, including anti-inflammatory and antioxidant effects.

3. Good Source of fibre

Fibre has several health benefits, including improving digestive health and aiding weight loss. Oranges are particularly high in soluble fibre, the kind of fibre that helps lower cholesterol levels. Compared to other fruits and vegetables, citrus fruits are unique in that they have a higher ratio of soluble to insoluble fibre.

4. Low in Calories

They're low in calories, yet their water and fibre contents help fill up. Thus, is smart choice for people seeking to lose or maintain their weight.

5. Reduce Risk of Kidney Stones

Many fruits and vegetables, especially citrus fruits, can raise the levels of citrate in urine, lowering the risk of kidney stones. Drinking citrus juices and eating these fruits can offer a natural alternative to potassium citrate supplements.

6. May Help Fight or Protect Against Cancer

Citrus fruits contain a host of plant compounds, including flavonoids, that may help protect against cancer. Some of these flavonoids act as antioxidants and may block the expression of certain genes that are responsible for some degenerative diseases, including cancer. Citrus fruits may also help fight cancer by suppressing cancers, blocking the formation of new cancers and making carcinogens inactive.

7. Contain Nutrients That Boost Heart Health

Several compounds in citrus fruits can improve markers of heart health. For example, their soluble fibre and flavonoids may improve cholesterol levels by raising “good” HDL cholesterol and lowering “bad” LDL cholesterol and triglycerides and many of the flavonoids in citrus fruits, including one called naringin, are strong antioxidants that benefit the heart in several ways

8. May Protect Brain

The flavonoids in citrus fruits may help ward off neurodegenerative diseases, such as Alzheimer’s and Parkinson’s, which result from the breakdown of cells in the nervous system. In part, these diseases are caused by inflammation. Flavonoids found in citrus fruits have anti-inflammatory capabilities that are thought to help protect against the chain of events that causes the nervous system to deteriorate. Specific types of flavonoids, including hesperidin and apigenin, have been shown to protect brain cells and improve brain function in mice and test-tube studies.

Nutritional content

Sl. No.	Nutrient	Amount (100 gm)
1.	Water	88.3
2.	Energy	45 kcal
3.	Protein	0.7 gm
4.	Fat	0.2 gm

5.	Carbohydrate	10.4 gm
6.	Dietary Fibre	0.2 gm
7.	Calcium	11 mg
8.	Vitamin C	50 mg
9.	Potassium	200 mg

(Source: USDA)

1.4 Value Addition

Value addition of fruit creates the opportunity for turning perishable fruit into a product that can store for longer periods of time. This can result in increased income for farmers, availability of nutritious fruit for a longer part of the year, and less fruit wasted. For Malta, this includes the creation of jams, jellies, juice, pulp, nectar, peel oil, essence etc and dried product that can be sold to businesses, restaurants, and consumers for an increased profit.

1.5 Malta Syrup

Malta syrup is concentrated Malta juice used as sweeteners. It is thick and viscous Malta juice that is obtained through dissolving sugar in cold juice or with short heating. It should not contain more than 65% sugar. Malta syrup can widely be used in preparation of beverages and drinks such as milkshakes, cocktails, ice lollies, baking and confectionary products, sauces and marinades, dessert or breakfast toppings etc. Since Malta is a popular fruit, its syrup too is enjoyed by people of all the ages.



CHAPTER 2

PROCESSING

2.1 Ingredients Required and Composition

INGREDIENTS	WEIGHT
Malta juice	1 litre
Water	1.5 litre
Sugar	1.5 Kg
Citric Acid	50 gm
Potassium Metabisulphite	2.9 gm
Orange Essence	2.9 gm
Colour	1 Drop/Pinch

The above ingredients can be increased as per the production requirements.

2.2 PROCESSING OF MALTA INTO SYRUP

Harvesting

Postharvest practices include everything after Malta is harvested to when it gets to the final market or consumer. This includes harvesting, packing, storing, transporting, processing, and marketing of produce. Good postharvest practices will increase the quality and the worth of the Malta while decreasing the amount that deteriorates.

Malta do not continue to ripen after being harvested, so they must be left on the tree until fully mature. They might remain green even if fully ripe. If it is not sure that Malta is ready to be harvested, it is removed from the tree and cut into half. If juice from the orange drips down and the flavour and colour of the pulp are sufficient, the Maltas are ready to harvest.

When harvesting Maltas, cut them off the tree with a bit of stem remaining so the point of attachment from the stem to the fruit does not leave a wound. Any type of wound on the fruit

will cause rapid deterioration as moisture will move out of the fruit and pathogens will move in.

Postharvest handling of Maltas

Fruit should be handled gently and with care. They are living tissues that can be bruised, can get too wet, too dry, too hot, too much sun, or too crowded.

The Processing of harvested Maltas into syrup includes following steps:

1. Fruit reception:

Fruit is delivered in trucks that discharge their loads at the fruit reception area. The fruit may be prewashed to get rid of immediate surface dirt and pesticide residue before any leaves and stems still attached are removed. Then follows pre grading by manual inspection to remove any unsuitable fruit. Sound fruit is conveyed to storage bins. Damaged fruit goes directly to the feed mill or are discarded.

2. Extraction of juice

Extraction involves squeezing or reaming juice out of either whole or halved Malta by means of mechanical pressure. After final washing and inspection, the fruit is separated according to size into different streams or lanes. Individual Malta is directed to the most suitable extractor in order to achieve optimum juice yield. As the extraction operation determines juice yield and quality, the correct setting of extractor operating conditions is very important.

3. Sugar Syrup Preparation

It is done by dissolving crystal sugar in hot water (90-100° C). After the sugar has been dissolved, the syrup is boiled briefly. Removal of impurities and coagulated substances is then performed by foaming / scumming. An addition of about 0.3% citric acid helps syrup clarification, followed by filtration through cloth.

Syrups have to contain 68% soluble substances (refractometric extract) and minimum 1 g/100 ml citric acid. Up to a maximum 10% of sugar can be replaced by corn syrup.

4. Boiling

Boiling of Malta juice with sugar syrup can be done by following any one of the following methods.

a. Boiling in open kettles

- Malta juice -350-400 litre
- Sugar syrup -650-660 litre
- Citric acid -10 kg (max)

The juice is added to the prepared sugar syrup; the total time has to be as short as possible in order to avoid flavour loss and a too high sugar inversion degree (optimum inversion degree is 40%). Acid is added preferably towards the end of boiling.

During all boiling processes it is necessary to remove foam / scum. In order to avoid caramelization, the syrup has to be cooled rapidly. This can be carried out in baths with double bottoms through which water is circulated. One alternative to this method is to boil syrup in closed vessels to avoid flavour losses.

b) Boiling in a vacuum

The basic recipe is the same as above. Sugar syrup and Malta juice are mixed previously in a pre-heating kettle and then transported to vacuum equipment.

Boiling is performed at 50° C and at the end the temperature is raised slowly up to 65-70° C. The syrup can be cooled directly in vacuum equipment by closing the steam inlet and by increasing the vacuum. In this boiling method it is possible to incorporate a flavour recovery device. Colour and Essence is added at the last in order to get the maximum flavour and aroma without its loss.

5. Syrup Filtration

This is a crucial step which is needed in order to clarify crystals and to get a clear translucent syrup. The filtration of syrup is done in warm conditions through cloth or using filtering sieve for syrups.

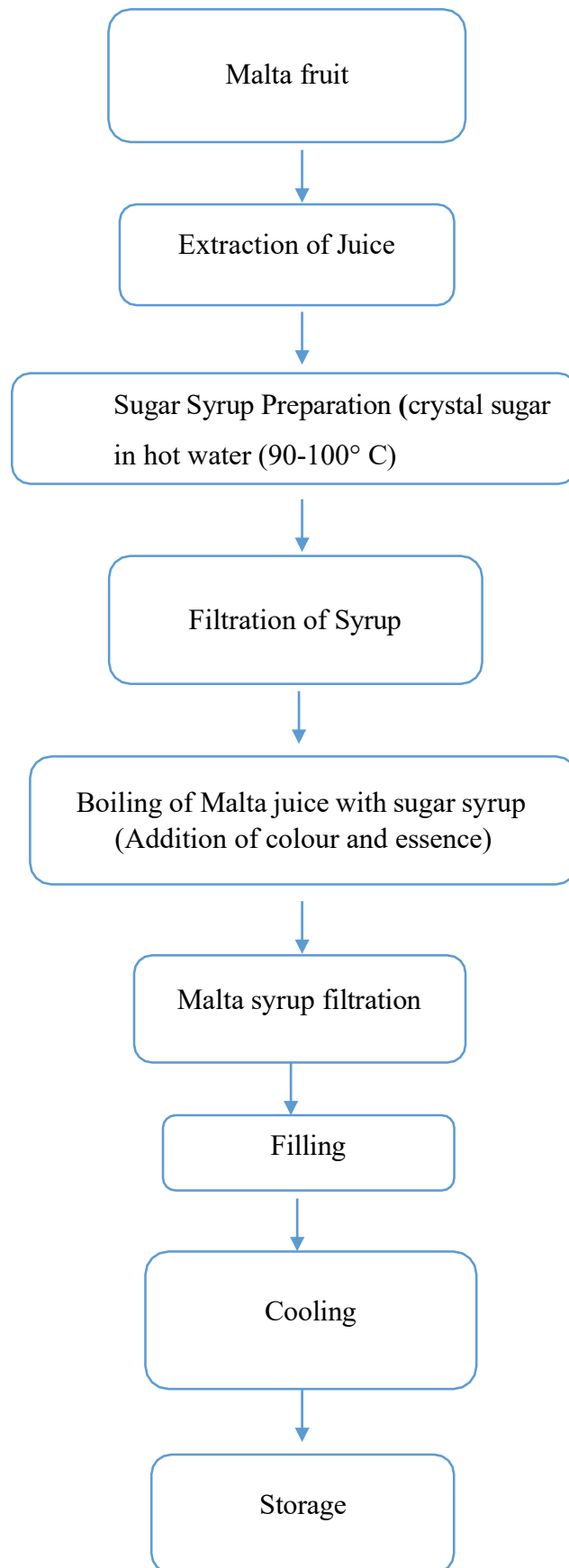
6. Filling

Filling of Malta syrup in bottles is done in aseptic conditions as much as possible in order to avoid syrup infection with osmophilic yeasts. Syrup preservation is assured by the high sugar content with respect to a low water activity. Regardless of the type of container, Malta syrup should be packed into cleaned and sterilized containers. Because filling into any kind of container, sterilized or not, may cause contamination, containers hot-filled with syrup should be inverted for 1-2 minutes immediately after being hot-filled and sealed.

7. Storage and Handling

Once containers/bottles are filled with syrup, they should be cooled before they are boxed and packed close together. Cooling will be more rapid, and the quality of the product will be maintained, if air can circulate around containers as they are cooling. It can take place in well ventilated storage rooms, avoiding sunlight at 10-15° C.

2.3 FLOW CHART



2.4 MACHINES USED

1. Industrial bubble washing machine



To remove adhering dirt, latex strains, surface organism if any, wash with 50 ppm chlorine to prevent the microbial contamination.

2. Juice Extraction



Using spiral type screw extractor.

3. Electric heating Jacketed Kettle



It is used for boiling. Its thick steel material strong enough to hold the body stable without shaking while mixing with max speed. Heating temperature is easily monitored and controlled on the panel.

4. Filter Press



The main operation of filter press is to filter the impure liquid. Arriving on top of each horizontal plate with increasing pressure, the filter media holds back the impurities and allows the filter to pass through centre by interlocking cups, which takes the filtrate to the outlet of the filter.

5. Semi-Automatic volumetric liquid filling machine



Used for easy and hassle-free aseptic filling of syrup into the bottles.

CHAPTER 3

PACKAGING

3.1 PACKAGING CRITERIA

The packaging material used for Malta syrup should fulfil following requirement:

- Absolutely leak-proof and prevent contamination
- Protects the contents against chemical deterioration
- No pick up of external flavours
- Be hygienic and safe
- Economical, easy to use and dispose process
- Maintain product composition & quality at full shelf-life
- Pack size, printing options, display etc
- Satisfy legislation requirement

3.2 ROLE OF PACKAGING

In addition to its most obvious function of containing the product, a consumer package must protect the specific quality parameters of Malta Syrup. Therefore, these quality parameters should be protected during a given shelf life.

- Protect the relevant flavour compounds
- Protect the high vitamin C content
- Prevent colour changes
- Prevent microbial growth

Package properties	Storage conditions
Barrier against	Protection against
1. Time	1. Temperature
2. Light	2. Non-aseptic
3. Flavour losses	3. Oxygen
4. Microorganisms	

3.3 MAJOR CLASSIFICATION OF PACKAGING

- Primary packing
- Secondary packing
- Tertiary packing

Types of Primary Packing Available for Malta Syrup in Market

Primary Packing – is the material that first envelops the product and hold it. This Usually is the smallest unit of distribution or use and is the package which is in direct contact with the contents. For Malta Syrup, primary packaging available in the market are:

1. Glass Containers



Bottles/ jars are commonly used for syrups. Glass bottles of various sizes are used and shapes with labels and provided with metal or plastic caps. The glass used for food packaging is soda-lime glass. Most bottles and jars are tailor-made specifically for one product or one manufacturer. Glass containers can be reused or recycled. It eliminates the risk of potentially harmful chemicals found in some plastics that can leach into food. It is now slowly being replaced because of the disadvantages such as heavy weight and brittle nature.

2. PP/ EVOH/ PP Bottle



These are lightweight, squeezable bottle also features a liner-less PP dispensing closure of proprietary design. The screw on the base, features a restricted orifice, which serves as the dispensing spout. The matching over-cap has a moulded plug in its centre, which fits into the dispensing orifice as it snaps into place and reseals the syrup. The bottle is available in a variety of shapes and can be designed for squeezing and dispensing thick products, said to be ideal for products subject to flavour losses in conventional plastic bottles. The barrier layer provides protection against oxygen permeation and helps to lock in flavour and aromatics. The material has a strong tolerance to heat and does not lose its properties at elevated temperatures.

3. PET bottles



Although most companies opt for narrow neck shaped bottles, the production of squeeze bottles with a thin wall is on the rise. The bi-oriented material gives the bottle high tensile strength and an increased gas barrier, which allows for lightweight bottles. Few advantages of this type of packaging are:

- Clear, shiny and transparent.
- Unbreakable.
- Good barrier properties.
- 100% recyclable.

Secondary Packaging

Secondary packaging is used mainly for logistical and storage purposes, to protect and collect individual units. Sometimes is also referred to as grouped or display packaging as they are made to display multiple units of products for sale. This facilitates resupply from the warehouse to the store and includes shelf-ready packaging (SRP), retail-ready packaging (RRP) or counter display units (CDU).

Secondary Packing Available for Malta Syrup in market

- Paper boards
- Cartons
- Reusable Plastic Crates

Tertiary packaging

Tertiary packaging is typically not seen by consumers since it is usually removed by retailers before products are displayed for sale. It is one of the three types of wrapping used to protect manufactured goods for shipping or storing. It is used to protect not only the product but also its secondary and primary packaging.



- Used for handling of bulk during storage and transport.
- Carton palletized unit of secondary package. Package for any product is selected based on their characteristics and stability

CHAPTER 4

FOOD SAFETY REGULATIONS AND STANDARDS

4. 4.1 Definition of Standards

According to FSSAI Standards (Food Products Standards and Food Additives) Regulations, 2011) **2.3.21 Fruit Syrups:** Fruit Syrups means the product prepared from unfermented but fermentable fruit juice/puree or concentrate clear or cloudy, obtained from any suitable fruit or several fruits by blending it with nutritive sweeteners, water and with or without salt, aromatic herbs, peel oil and any other ingredients suitable to the products.

Name of the products	Min (%) of fruit juice/ puree in the final product	Total Soluble Solids Min (%)	Acidity expressed as Citric Acid Max (%)
Fruit Syrup/Fruit Sharbats	25	65	3.5

Use of food additives in food products

Food products may contain additives as specified in these regulations and in the following Table.

Food Category System	Food Category Name	Food Additive	INS No	Recommended maximum level
14.1.4.3	Concentrates (liquid or solid) for water-based flavoured drinks (synthetic syrups for dispensers, sharbat (synthetic syrup) *,	Canthaxanthin	161g	5 mg/kg
		Ferric ammonium citrate	381	10 mg/kg
		Lauric arginate ethyl ester	243	50 mg/kg
		Polyvinylpyrrolidone	1201	500 mg/kg
		RIBOFLAVINS	50 mg/kg	200 mg/kg
		SACCHARINS	300 mg/kg	200 mg/kg

	squashes, crushes, fruit syrups, cordials and barley water			
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4.2 FOOD SAFETY AND STANDARDS (PACKAGING AND LABELLING) REGULATIONS, 2011

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) enamelled 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.

Labelling Requirements

All food products sold in India that are pre-packaged are required to comply with the Food Safety and Standards (Packaging and labelling) Regulations, 2011. The Food Safety and Standards Regulation, 2011 is a notification issued by the Food Safety and Standards Authority of India under the Ministry of Health and Family Welfare.

Applicability of Food Labelling Regulations

The food labelling regulations require all “Pre-packaged” or “Pre-packed food” to comply with the labelling regulations in India. As per the rules, pre-packaged food means food, which is placed in a package of any nature, in such a manner that the contents cannot be changed without tampering it and which is ready for sale to the consumer.

General Labelling Requirements

The following labelling requirements must be complied with by all pre-packaged food sold in India:

- The label must be in English or Hindi or Devnagri language. In addition to the above, the label can contain information in any other language, as required.
- The label must not contain information about the food that could be deemed to be false, misleading, deceptive or otherwise create an erroneous impression regarding the product.
- The label must be affixed to the container in such a manner that it would not easily be separated from the container.
- The contents or information presented in the label should be clear, prominent, indelible and readily legible by the consumer.
- If the container is covered by a wrapper, then the wrapper must contain necessary information or make the label of the product inside readily legible by not obscuring.

- The name of the food must be mentioned along with the trade name and description of the food contained. In case the food contains more than one ingredient, then a list of ingredients must be presented in descending order of their composition by weight or volume, as the case may be, at the time of its manufacture;

Nutritional Information

- Nutritional Information or nutritional facts per 100 gm or 100ml or per serving of the product must be given on the label along with the following information:
- energy value in kcal;
- the amounts of protein, carbohydrate (specify the quantity of sugar) and fat in gram (g) or ml;
- the amount of any other nutrient for which a nutrition or health claim is made:

It is important to note that any “health claim” or “nutrition claim” or “risk reduction” claim made in the label will be thoroughly scrutinized by the FSSAI authorities. Hence, any such claim must be validated by test data. As per the rules, the following is the definition for “health claim”, “nutrition claim” and “risk reduction” claim:

“Health claims” means any representation that states, suggests or implies that a relationship exists between a food or a constituent of that food and health and include nutrition claims which describe the physiological role of the nutrient in growth, development and normal functions of the body, other functional claims concerning specific beneficial effect of the consumption of food or its constituents, in the context of the total diet, on normal functions or biological activities of the body and such claims relate to a positive contribution to health or to the improvement of function or to modifying or preserving health, or disease, risk reduction claim relating to the consumption of a food or food constituents, in the context of the total diet, to the reduced risk of developing a disease or health-related condition;

“Nutrition claim” means any representation which states, suggests or implies that a food has particular nutritional properties which are not limited to the energy value but include protein, fat carbohydrates, vitamins and minerals;

“Risk reduction” in the context of health claims means significantly altering a major risk factor for a disease or health-related condition

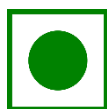
Veg or Non-Veg Symbol

All packaged food that is “Non-Vegetarian” must have a symbol that is a brown colour filled circle inside a square with a brown outline. If a food contains only egg as a non-vegetarian ingredient, then the manufacturer may provide a declaration that the product contains only egg and add the non-vegetarian symbol



Non-Veg Symbol

Packaged vegetarian food should have a symbol that consist of green colour filled circle inside a green square.



Vegetarian Symbol

Information Relating to Food Additives, Colours and Flavours

Food additives contained in the food product must be mentioned along with class titles along with the specific names or recognized international numerical identifications. Addition of colouring matter should be mentioned on the label along with certain statements like “CONTAINS PERMITTED NATURAL COLOUR(S)”, just beneath the list of the ingredients on the label. In case of addition of extraneous flavouring agent, then it should be mentioned in a statement like “CONTAINS ADDED FLAVOUR” just beneath the list of ingredients on the label.

Name and Complete Address of the Manufacturer

The name and complete address of the manufacturer must be mentioned on every package of food. In the case of imported food, the package must contain the name and complete address of the importer in India.

Net Quantity

All packaged food must carry the net quantity by weight or volume or number, as the case may be. The net quantity of the commodity contained in the package must exclude the weight of the wrappers and packaging materials.

Lot Number of Batch Identification

A lot number or batch number or code number must be mentioned on all packaged food so that it can be traced while manufacturing and distribution. Only bread and milk including sterilised milk are not required to comply with this regulation.

Date of Manufacture or Packing

The date, month and year in which the commodity is manufactured, packed or pre-packed must be mentioned on the label. In the case of food products having a shelf life of more than three months, then the month and the year of manufacture can be given with the “Best Before Date”. In case of products having a shelf life of fewer than three months, the date, month and year in which the commodity is manufactured or prepared or pre-packed must be mentioned on the label with best before date.

Country of Origin for Imported Food

For imported food, the country of origin of the food should be declared on the label of the food. In case a food product undergoes processing in a second country which changes its nature, the country in which the processing is performed should be considered to be the country of origin for the purposes of labelling.

Instructions for Use

Instructions for use, including reconstitution, should be included on the label, if necessary, to ensure correct utilization of the food.

4.3 SANITARY AND HYGIENIC REQUIREMENTS FOR FOOD, MANUFACTURER/PROCESSOR/HANDLER

The place where food is manufactured, processed or handled shall comply with the following requirements:

1. The premises shall be located in a sanitary place and free from filthy surroundings and shall maintain overall hygienic environment. All new units shall set up away from environmentally polluted areas.
2. The premises to conduct food business for manufacturing should have adequate space for manufacturing and storage to maintain overall hygienic environment.
3. The premises shall be clean, adequately lighted and ventilated and sufficient free space for movement.
4. Floors, Ceilings and walls must be maintained in a sound condition. They should be smooth and easy to clean with no flaking paint or plaster.
5. The floor and skirted walls shall be washed as per requirement with an effective disinfectant the premises shall be kept free from all insects. No spraying shall be done during the conduct of business, but instead fly swats/ flaps should be used to kill spray flies getting into the premises. Windows, doors and other openings shall be fitted with net or screen, as appropriate to make the premise insect free. The water used in the manufacturing shall be potable and if required chemical and bacteriological examination of the water shall be done at regular intervals at any recognized laboratory.
6. Continuous supply of potable water shall be ensured in the premises. In case of intermittent water supply, adequate storage arrangement for water used in food or washing shall be made.
7. Equipment and machinery when employed shall be of such design which will permit easy cleaning. Arrangements for cleaning of containers, tables, working parts of machinery, etc. shall be provided.
8. No vessel, container or other equipment, the use of which is likely to cause metallic contamination injurious to health shall be employed in the preparation, packing or storage of food. (Copper or brass vessels shall have proper lining).
9. All equipments shall be kept clean, washed, dried and stacked at the close of business to ensure freedom from growth of mould/ fungi and infestation.
10. All equipments shall be placed well away from the walls to allow proper inspection.
11. There should be efficient drainage system and there shall be adequate provisions for disposal of refuse.
12. The workers working in processing and preparation shall use clean aprons, hand gloves, and head wears.
13. Persons suffering from infectious diseases shall not be permitted to work. Any cuts or wounds shall remain covered at all time and the person should not be allowed to come in direct contact with food.

14. All food handlers shall keep their finger nails trimmed, clean and wash their hands with soap, or detergent and water before commencing work and every time after using toilet. Scratching of body parts, hair shall be avoided during food handling processes.
15. All food handlers should avoid wearing, false nails or other items or loose jewellery that might fall into food and also avoid touching their face or hair.
16. Eating, chewing, smoking, spitting and nose blowing shall be prohibited within the premises especially while handling food.
17. All articles that are stored or are intended for sale shall be fit for consumption and have proper cover to avoid contamination.
18. The vehicles used to transport foods must be maintained in good repair and kept clean.
19. Foods while in transport in packaged form or in containers shall maintain the required temperature.
20. Insecticides / disinfectants shall be kept and stored separately and `away from food manufacturing / storing/ handling areas.



Contact Us

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