



**PM Formalisation of
Micro Food Processing Enterprises (PM-FME) Scheme**

**HANDBOOK OF
PREPARATION OF SAMBHAR POWDER**



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CHAPTER 1

INTRODUCTION

1.1 Spices

Spices play an important role in enhancing the flavor and taste of the processed foods. In addition, medicine industry is a major consumer of spices. Spice shall mean or to be applied to any dried, fragrant, aromatic or pungent, edible vegetable or plant substance, in the whole, broken or ground form, which contributes flavor; whose primary function in food is seasoning rather than nutrition, and which may contribute relish or piquancy to foods or beverages that is true to name, and from which no portion of any volatile oil or other flavoring principle has been purposely removed, or which no additive or spent spice has been added. Spices may be either the bark, buds, bulbs, flowers, fruit, leaves, rhizome, roots, seeds, stigmas and styles or the entire plant tops.

1.2 Market Outlook

Spices have been an integral part of the Indian diet, and the demand for spices has been growing year after year. India has certain natural comparative advantages with respect to production and utilization of spices; these include diverse agro-climatic production environments, availability of innumerable varieties and cultivars of each spice suitable for different climatic conditions, cheap labor, large domestic market and a strong tradition of using spices and their products in food, medicine and cosmetics.

India is the largest producer, consumer, and exporter of spices in the world. India, known as the home of spices, boasts a long history of trading with the ancient civilizations of Rome and China. Today, Indian spices are the most sought-after globally, given their exquisite aroma, texture, taste and medicinal value. India has the largest domestic market for spices in the world. Traditionally, spices in India have been grown in small land holdings, with organic farming gaining prominence in recent times.

India being a major producer of spices boosts stronger potential for spices supply. Spice exports contribute to nation's gross income considerably in countries like China, India, Africa and the Middle East. Spices are generally sold at premium prices and also in greater demand which can further enhance export revenues in major spice producing countries. Spices farming mechanism starts at grass root level conserving the generative and renewing capacity of the soil, plant nutrition, and soil management, yields nutritious food rich in vitality which has resistance to diseases. Increasing demand of natural flavoring and coloring agents in food, medicinal properties and health

benefits are driving the spices market. There is high demand for spices from regions like Asia Pacific, Middle East and Europe.

The global demand for a variety of spices has continued to rise in the past few years owing to the vast rise in the consumption of convenience foods, snacks, and confectionary. The widened market for processed and ready-to-eat food products has also had a vast positive impact on the overall global consumption of a variety of spice.

The global market for spices has witnessed continued demand during the last few years and is estimated to reach 83,468 kilo tons by 2022, at a CAGR of 2.84% from 2016 to 2022. Increase in versatile demand across various food and beverage segments particularly for convenience foods and beverages are likely to drive the global spices market during forecast period 2016 to 2022.

On the basis of product type, the global spice market can be segmented into cardamom, pepper, cumin, clove, and ginger. On the basis of application, the market can be segmented into sauces, soups, frozen food, meat, convenience foods, poultry food, and bakery.

The mounting growth rate of flavor enhancers in developing countries is causing an increased demand for sauces, dips, spices, and others. This has uplifted the demand for condiments in the food & beverage industry. Moreover, the convenience packed food products have demanded an improved condiments product line, which has positively impacted the market growth of condiments.

Furthermore, R&D investments have led to new product launches in the range which has further added fuel to the growth of this market. Additionally, improvement in the production process and development of improved products from major key players are expected to support the growth of the global condiments market during the forecast period, 2017–2023.

1.3 Sambhar Powder

Sambhar powder is a spice blend used throughout India, especially the southern states. As the name suggests it is used to make Sambhar, a broth made with vegetables and cooked lentils flavored with tamarind pulp and sambhar powder. It is eaten with rice or snacks like dosa, idli and vada.

Each state in the south prepares its taste and environment. Likewise, every family has its own sambhar powder recipe, with ingredients proportioned according to the level of spiciness preferred by them. However, these days the availability of ready to use sambhar powder has made sambhar preparation easier and faster.

Some common ingredients in sambhar powder are toor dal, red chillies, cumin seeds, coriander seeds, peppercorn, fenugreek, turmeric and curry leaves. The ingredients are dry roasted (individually) till aromatic, and then ground in a mixer.

1.4 Culinary Uses of Sambhar Powder

There are numerous versions of Sambar, with each region in India producing the dish in its own particular style. The dish sambar can include a vast number of fruits and vegetables, including bananas. For example, the Tamil Nadu version includes its seasonings in powder form while the neighboring state of Karnataka seasons theirs using spice pastes. Migrants to Kerala from Tamil Nadu brought the sambar dish with them and added local ingredients like coconut. Sambar powder is a highly versatile spice blend that can work with a number of ingredients. In addition to its traditional use, you can use it like other spice blends. Use it to flavor soups, sauces and in dry rubs for meat.

- Sambhar powder is used to prepare a south Indian delicacy called sambhar.
- Sambhar powder can also be added to curries, vegetable dishes, soups or stews toward the end of cooking to impart a typical south Indian flavor to the dish.

1.5 Health Benefits of Sambhar Powder

Almost all of the ingredients in sambhar powder provide significant amounts of vitamins and minerals, which makes it an effective tool for supplementing these nutrients and others in your diet. The nutrients in sambhar powder include:

Vitamins

The red chili peppers in sambhar powder contain high levels of vitamin A, while coriander seeds have smaller amounts. Mustard seeds offer modest amounts of various B vitamins.

- Minerals: The turmeric in sambhar powder supplies a considerable amount of iron, which is also found in coriander seeds and chana dal. Mustard seeds provide magnesium and a high level of selenium.
- Fiber: Most of the ingredients in sambhar powder are good sources of dietary fiber.

By including sambhar powder in your diet, you may be able to treat or prevent health conditions like:

- Skin diseases: Mustard seeds are thought to have anti-inflammatory properties that make them be beneficial for treating psoriasis and contact dermatitis.

- Liver-related illnesses: Turmeric is a powerful antioxidant and is thought to be especially beneficial for liver health. It can help to keep your liver from being damaged by toxins.
- Cancer: Both mustard seeds and turmeric show significant promise when it comes to cancer prevention. Mustard seeds contain a class of phytochemicals called isothiocyanates, while turmeric contains a compound called curcumin. There is evidence that isothiocyanates can inhibit cancer growth, especially in gastrointestinal and colorectal cancer. Curcumin is thought to have a similar effect on breast, prostate and liver cancer among other types of cancer.

CHAPTER 2

PREPARATION OF SAMBHAR POWDER

2.1 Importance of Value addition of Spices

Value added products indicates that for the same volume of a primary product, a high price is realized by means of processing, packaging and upgrading the quality or other such be handled per unit area, also encourages the growth of ancillary industry and fetches increased foreign exchange. Majority of total spices trade (about 85%) is in the raw and bulk form. Thus there is a vast scope for exporting the processed and value added spice products in India.

The value added spice products have certain advantages that are mentioned below:

- It imparts their total flavour and keep intact the aromatic constituents.
- It does not varies in flavour, strength and quality.
- It is more hygienic than whole spice.
- It fetches increased foreign exchange.
- More volume can be handled per unit area.
- It helps to encourage the growth of ancillary industries. 7. It is easy to store.
- Therefore, emphasis should be given on the production of more value added spice products as there is a vast scope to export the processed and value added spices. The following are the different kinds of value added products in spices black pepper powder, pepper oleoresin, cardamom oil, curcumin, turmeric oleoresin, bleached ginger, garlic paste, onion powder, coriander oleoresin, etc.

2.2 Formulation of Sambhar Powder

S.No.	Ingredients	Weight
1.	Coriander Seeds	1 kg
2.	Dried Chilli	1 kg
3.	Pepper	100 g

4.	Turmeric	10 g
5.	Bengal Gram	100 g
6.	Fenugreek	100 g
7.	Cumin	100 g
8.	Asafoetida	10 g
9.	Curry Leaves	100 g

2.3 Unit Operations involved in Sambhar Powder Processing



The process of manufacture involves cleaning, drying, pulverizing, sieving and packaging of spices such as chilli, pepper, turmeric, coriander, etc. either individually or in combination with other spices. There are various formulations for curry powder, but the ingredients like red chilli, black pepper, cloves, coriander seed, cumin seed,

fenugreek seed, ginger, and turmeric are typically common. The proportion and the inclusion of spices in a particular mix depend on individual manufacturers.

2.3.1 Quality specifications

The following ISI specifications are available for ground spices.

1. Black whole and ground ISI-1798-1961
2. Chilli powder ISI-2445-1963
3. Coriander powder ISI-2444-1963
4. Curry powder ISI-1909-1961
5. Turmeric powder ISI-2446-1963
6. Methods of sampling and test of Spices and condiment ISI-1997-1961

Provisions have also been made in the scheme for a testing laboratory so that the unit will be able to test their product and maintain the quality as per PFA and - Agmark standards.

2.4 Processing Description

Cleaning

The crop should be cleaned before processing. Selection the high quality produces from the field; cleaning the crop by washing and disinfection. The first stage is to remove dust and dirt using a winnowing basket. Small machines are available for cleaning but they are rarely cost effective. After winnowing the crop needs to be washed in water, all that is needed is two or three 15 litre buckets. For larger quantities a 1m³ sink/basin with a plug hole needs to be constructed. This can be made out of concrete. However, the water must be changed regularly to prevent recontamination of spices by dirty water. Only potable water should be used. Washing prior to processing is desirable to remove field Contaminants (dust, soil) using anti-microbial solutions to reduce the microbial populations to a low level prior to the drying process.

Drying

The aim of drying is to reduce the moisture content of the product from actively growing in the field to a level that prevents deterioration of the product and allows storage in a stable condition. After washing the crop preparing the crop for drying by some spice crops are pretreated by peeling or slicing; pre-treating with anti-oxidants, blanching or

sulfurizing before drying so as to prevent enzymatic activities. The drying process should dry the crop as quickly as possible, at temperature levels which do not drive off the volatile flavor compounds. The drying temperature regime will be specific to each crop as will be the final moisture percentage for storage. The traditional open sun drying that is widely used in developing countries has major inherent limitations when trying to preserve product quality. High crop loss and low product quality result from inadequate drying, long drying times, fungal spoilage, insect infestations, bird and rodent damage and contamination plus the effects of sunlight and the weather.

Roasting

Roasting is a typical dry heating food processing operation having different objectives to meet certain specific requirements. A number of food ingredients and products are subjected to dry roasting without using oil and water. Dry roasting is a simple process that requires the spices to be heated a little at a temperature of 180°C for 2-3 mins which will help enhance the flavours. Heating releases natural oils and compounds which accentuate the taste of the spice when used in a dish.

Grinding

Grinding is an important unit operation in which the size of the particle is reduced and their surface area is increased. Grinding is the most power consuming operation because only 1% of the energy imparted into the material is utilized loosening the bond between particles, whereas almost 99% of input energy is dissipated as heat, rising the temperature of the ground product etc. In spice grinding temperature rises to the extent of 42 - 93 °C and this causes the loss of volatile oil and flavouring constituents; for high oil bearing material, oil comes out from oil bearing material during grinding, which makes ground product gummy, sticky and results in chocking of sieves through which the product passes. Thermal damage is one of the main limitations of the conventional grinding process, so it is especially important to perform the grinding under controlled temperatures conditions.

For small-scale production (up to 100kg/day) manual grinders are adequate. Small Chinese or Indian models designed for domestic spice grinding are suitable. A treadle or bicycle could be attached to make the work easier. For larger scale production a small, powered grinding mill is needed and models are available that can grind 25kg/hour. A grinding mill needs to be placed in a separate and well ventilated room because of the dust. Great care is needed to ensure uniform sized pieces/powders after grinding and also to prevent heating of spices during grinding.

Cryogenic grinding a new concept in spices processing, which results into higher production with better end product quality (aroma and color), than conventional spices grinding unit. This Technology uses liquid nitrogen to control the grinding chamber

temperature, the result of which is reduction in loss of volatile essential oils in the spices and higher production rate.

2.5 Process Flow Chart and Equipments Required



Weighing of Ingredients



Roasting 180°C 2-3 mins



Pulverising



Packing & Storage



URULI ROASTER



PULVERISER



RIBBON BLENDER



TRAY DRYER



FORMFILL SEAL MACHINE

CHAPTER 3

PACKAGING OF SAMBHAR POWDER

3.1 PACKAGING REQUIREMENTS OF SAMBHAR POWDER

Spoilage Factors

In order to select a suitable packaging material/type of package for spices, it is essential to know the factors which affect the quality of spices.

Moisture Content

Spices, specifically spices in powder form, are hygroscopic in nature and pick-up moisture from the atmosphere resulting in sogginess and caking/lumping of the powder. Pick-up of moisture also results in loss of free-flowing nature of the spice powder.

Loss of Aroma / Flavour

Spices contain volatile oils, which impart the characteristic aroma/flavour to the product. Loss in the volatile oil content or oxidation of some aromatic compounds result in aroma and flavour loss

Discolouration

Some of the spices like green cardamom, red chillies, turmeric, saffron contain natural pigments. Light can affect the pigments resulting in loss or fading of colour and deterioration.

Insect Infestation

Spices are prone to spoilage due to insect infestation, which can be further accelerated due to high humidity, heat and oxygen.

Microbial Contamination

In high humidity condition of 65% and above, moisture absorption occurs. Beyond a certain level of moisture content, spoilage due to microbial growth sets in.

3.1.1 Packaging Functions

In order to maintain the quality of the spices during handling, transportation, storage and distribution, the packaging material to be used is to be selected with care, keeping in mind the functional as well as the marketing requirements. The packaging requirements for spices, in general, are listed below:

- To protect the product from spillage and spoilage.

- To provide protection against atmospheric factors such as light, heat, humidity and oxygen. The selected packaging materials should have high water vapour and oxygen barriers.
- The packaging material should have a high barrier property to prevent aroma/flavour losses and ingress of external odour.
- The volatile oil present in the spice product has a tendency to react with the inner/contact layer of the packaging material, at times leading to a greasy and messy package with smudging of the printed matter. The packaging material should therefore be grease and oil resistant and compatible with the product.
- Besides the above functional requirements, the packaging material should have good machinability, printability and it should be easily available and disposable.

3.1.2 Forms of Spices

In India spices are distributed and traded in a number of forms such as:

- Whole spices (cardamom, black pepper, clove, turmeric, ginger, cinnamon, cassia)
- Seed spices (celery, fennel, cumin, fenugreek)
- Powdered or ground spices (turmeric, chillies, ginger)
- Spice mixes (curry powders and masalas)
- Paste (curry paste, vindaloo paste, ginger-garlic paste)
- Concentrates (tamarind concentrate)
- Oils and oleoresins

Whole spices are generally traded in bulk quantities and the processor grinds them and blends them for the finished spice product. Some quantity of the ground and blended spices are packed in consumer packs of capacities ranging from 100 grams to 1kilogram. The protection required by whole spices is from moisture ingress / pick-up and insect infestation. The loss in flavour during storage in whole spices is negligible as the volatile oils are well protected within the cells of the plant material. Powdered spices are also traded in bulk quantities and only a small portion is packed in value added consumer packs. In powdered spices, the deterioration is very rapid and much more care is required in selecting a suitable package.

Conventionally spices were exported in bulk packages, however with efforts of Spices Board and the Government of India, exports in branded and value added consumer packages is gradually on the increase.

3.2 Packaging Materials / Systems for Spices

3.2.1 Bulk Packaging

The traditional method is to use gunny/jute bags for packaging of whole spices, with capacities ranging from 10kg to 70kg. The jute bags may be provided with a loose liner bag of polyethylene or may be without a liner. At times double gunny bags are also used, especially for whole black pepper. The double gunny bag is provided with an inner polyethylene liner. The quality of the jute fabric used with respect to the grammage and the weave (ends/picks) varies from one trader to the other. There is no standardisation on the type and quality of the fabric used. A variety of jute fabrics such as hessian, light weight DW, A-twill, heavy Cee etc. are used.

Recently, some of the spice traders/packers use alternate bulk packaging media such as woven plastic bags which may be laminated or provided with a loose liner bag and multiwall paper sacks with a plastic liner bag. The plastic based alternate packaging materials are used to overcome the contamination problems associated with jute. Moreover, the plastic bags / liners also help in retaining the quality of the spices packed inside for a longer time.

The latest trend is to use Jumbo bags (Flexible Intermediate Bulk Containers) (FIBCs) for export of spices. These bags have a capacity of up to 1 tonne and offer various advantages such as:

Bags are flexible, collapsible and durable

- Can be used for packaging of granules, powder, flakes and any free flowing material
- Product wastage / spillage and tampering can be avoided
- Since the handling is mechanised, less labour is required
- Saving in time for loading and unloading
- Bags are light in weight and, therefore, freight costs are reduced
- Creates eco-friendly, pollution free working atmosphere

The jumbo bags are sometimes made from cloth but mainly from plastic fabric, which can be laminated or provided with an inner plastic liner bag. The bags are provided with filling and discharge spouts and slings for hanging during loading/unloading operations. For designing a jumbo bag, factors such as capacity, product protection requirement, bulk density of the product, filling and discharge facilities available at the user's end, are to be considered.

3.2.2 Institutional Packages

The spice traders also use institutional packs of capacities ranging from 2kg to 10kg. The variety of packages used include laminated flexible pouches and plastic woven sacks which replace traditional material like tinplate containers and jute bags.

3.2.3 Consumer Packages

The options available to the traders/exporters of spices in the selection of a consumer pack for domestic and export market are quite wide. However, the selection/choice of the packaging material/ system depends upon a number of factors, which are broadly listed below:

- Shelf-life period i.e. the degree of protection required by the product against moisture pick-up, aroma retention, discolouration etc. (this is more critical in case of powdered spices)
- Climatic conditions during storage, transportation and distribution
- Type/sector of market
- Consumer preferences
- Printability and aesthetic appeal

The package types generally used as consumer packs are:

- Glass bottles of various sizes and shapes with labels and provided with metal or plastic caps. Unbranded Consumer Packs of Ground Spices 198 The plastic caps have added inbuilt features of tamper evidence, dispensing, grinding etc.
- Printed tinplate container with/without dispensing systems
- Composite containers with dispensers
- Plastic containers with plugs and caps with dispensing and tamper evidence features
- Printed flexible pouches – pillow pouch, gusseted pouch, stand-up pouch.
- Lined cartons

The printed flexible pouches have recently become very popular due to their easy availability, excellent printability, light weight, machinability and cost-effectiveness. Also, depending upon the functional and marketing requirements, the laminate/film can be tailor made to serve a specific need.

The printed flexible pouches are generally laminates of various compositions. Some of the commonly used laminates are:

- Polyester/metallised polyester/LDPE
- BOPP/LDPE
- BOPP/metallised polyester/LDPE

- Polyester/Al foil/LDPE

Polyester and BOPP based laminates are generally more popular for spice packaging due to certain advantageous characteristics of each of these two films.

Polyester used for lamination is generally 10 or 12 μ thick. The film is highly transparent with excellent clarity, gloss and printability thus enhancing the sales appeal. The film has very low moisture and gas permeability and, therefore, ensures prolonged shelflife of the contents with aroma, flavour and taste retention. The very high mechanical strength (tear, puncture, burst and flex) minimises damage to the contents during handling and transportation. The film has good machinability as well as printability. The latest printing technologies help in improving sales promotions. The film is free from additives and, therefore, does not impart any odour or taint to the sensitive spice product that is packed.

BOPP films may be heat sealable or non heat sealable. The film has high yields, is stable under climatic changes and has excellent moisture barrier. This film is smooth, glossy, crystal clear and has high mechanical strength and non-contamination property for food contact applications.

The sealant layer of LD – HD or LDPE can be replaced by LLDPE or cast PP. Co-extruded films can also be used. PVDC, EVOH and EVAL based flexible materials also need to be studied as they are now in the market and these materials have high barrier properties.

A very important aspect to be considered in the selection of flexible laminate, besides the factors mentioned earlier, is the compatibility of the contact layer of the packaging substrate with that of the product packed inside. This needs to be viewed critically for spice powders of turmeric, chilli, ginger, pepper as well as spice mixes containing these spices. The volatile oils present in these spices can react with the contact layer and cause stickiness and can also affect the printing. De-lamination of the substrates may also occur. For these products, it is best to avoid the use of LDPE (low density polyethylene) as the heat sealant or the food contact layer. The better option for sealant or contact layer could be co-extruded film of LD-HDPE (with HDPE in contact with the product) or cast polypropylene. Alternatively, ionomer (surlyn) or EAA (primacor) can also be considered as the sealant layers.

The types of pouches from flexible plastic based materials could be variable:

- Centre seal formation
- Three sides seal formation
- Four sides seal formation
- Strip pack formation

The vital link in the performance of the pouch is the seal integrity. The performance of the heat seal layer is very important. Even if the film structure has been designed with exceptional properties, with excellence in interlayer lamination, if the sealing of the pouch fails, the product may get contaminated and in some cases become unfit for consumption.

Among the semi-rigid packages, plastic containers, specially of stretch blown PET of different shapes are reported to be suitable for a shelf-life of about 180 days for masala mixes. PET containers have the advantage of being clear, light in weight and have the desired barrier properties.



**POLYESTER/METALLISED
POLYESTER/LDPE**



BOPP/LDPE

CHAPTER 4

FOOD SAFETY REGULATIONS & STANDARDS

4.1 FSSAI STANDARDS, REGULATIONS, LICENSING & FOOD SAFETY OF SAMBAR POWDER

12.2.1 Herbs, spices, masalas, spice mixtures including oleoresins or extracts/derivatives thereof

Herbs and spices are usually derived from botanical sources, and may be dehydrated, and either ground or whole. Examples include chilli, turmeric, pepper, asafoetida, anise, aniseed (saunf), basil, bay leaf, caraway (shiajeera), cardamom (elaichi), large cardamom, cinnamon, clove, cumin, and carom seeds (ajowain) etc. Spices may also be found as blends in powder or paste form. Examples of spice blends include chilli seasoning, chilli paste, curry paste, curry roux, and dry cures or rub that are applied to external surfaces of meat or fish. Blends of spices with other ingredients (Masalas) include curry powder, sambhar masala, rasam masala, chhole masala, pavbhaji masala etc.

2.9.20: MIXED MASALA

1. **MIXED MASALA (WHOLE)** means a mixture of clean, dried and sound aromatic herbs and spices. It may also contain dried vegetables and/or fruits, oilseeds, garlic, ginger, poppy seeds and curry leaves. It shall be free from added colouring matter. It shall be free from mould growth and insect infestation. The proportion of extraneous matter shall not exceed five per cent by weight, out of which the proportion of organic matter including foreign edible seeds and inorganic matter shall not exceed three per cent and two per cent respectively.

66[2.MIXED MASALA POWDER. - (1) “Mixed masala powder” means the powder obtained from grinding clean and dried spices and herbs, including their extracts, which may contain ingredients such as edible starches, edible salt, dried fruits and vegetables or their products, edible vegetable oil and fats or their products, nuts and their products, cereals and pulses or their products, nutritive sweeteners or other ingredients suitable to the product.

(2) All the above ingredients shall either be standardised or permitted for use in the preparation of other standardised food under these regulations.

(3) The spices and herbs covered under ISO, Codex, Spices Board and Food Safety and Standards (Food or Health Supplements, Nutraceuticals, Foods for Special Dietary

Uses, Foods for Special Medical Purpose, Functional Foods and Novel Food) Regulations, 2016 may also be used, which shall be free from extraneous matter, mould growth, and insect infestation.

(4) It shall meet the following requirements, namely:-

S.No.	Characteristics	Requirements		
		A	B	C
1.	Spice content percent by mass (Minimum)	85.0	40.0	25.0
2.	Moisture percent by mass (Maximum)	12.0	12.0	12.0
3.	Volatile oil percent volume by mass (on dry basis) maximum	0.4	0.2	0.1
4.	Acid insoluble ash percent by mass (on dry basis) (Maximum)	2.0	2.0	2.0

(5) The minimum percentage of “Spice Content” shall be mentioned on the label and the parameters and their limits specified against serial number (ii) to (iv) of the table in subclause (4) shall be applicable as per the minimum spice content specified therein.

(6) In addition, the name of the specific product such as chana masala, sambar Masala may also be mentioned and the salt content above 5 per cent shall be declared on the label.]

Food Category System	Food Category Name	Food Additive	INS No	Recommended maximum level	Note
12.2.1	52[Herbs, spices, masalas, spice mixtures including oleoresins or extracts/derivatives thereof]	POLYSORBATES		2,000 mg/kg	
		SULFITES		150 mg/kg	

4.1.1 MICROBIOLOGICAL PARAMETERS FOR SPICES

S.No.	Requirements	Mixed Masala
		22
1.	Total Plate Count	-
2.	Coliform Count	-
3.	E.Coli	-
4.	Salmonell	Absent in 25gm.
5.	Shigella	-
6.	Staphylococcus Aureus	-
7.	Yest and Mould Count	-
8.	Anaerobic Spore Count	-
9.	Listeria Monocytogens	-

4.2 Food Safety

Part I - General Hygienic and Sanitary practices to be followed by Petty Food Business Operators applying for Registration (See Regulation 2.1.1(2))

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.

4.3 LABELLING

4.3.1 Labeling Requirements

All food products sold in India that are prepackaged 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. In this article, we look at the regulations pertaining to food labelling in India.

4.3.2 Applicability of Food Labelling Regulations

The food labelling regulations require all “Prepackaged” or “Pre-packed food” to comply with the labelling regulations in India. As per the rules, prepackaged 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.

4.3.3 General Labelling Requirements

The following labelling requirements must be complied with by all prepackaged 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;

4.3.4 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;

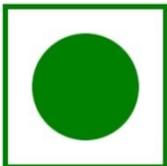
Veg or Non-Veg Symbol

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 square with green.



Veg 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.



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