



PM Formalisation of Micro Food Processing Enterprises Scheme

Processing of Mustard Oil



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CHAPTER- 1

INTRODUCTION

1.1. Mustard seed

The mustard seed ranks fourth among the major oilseeds of the world. India is an important rape seed mustard growing country in the world, occupying largest area and has second position in production after China. The cultivation of the plant for oilseed production is almost entirely confined to the temperate and warm temperate zone of Asia and Europe. Rapeseed thrives best in rich soil in a cool and moist climate. Mustard seed in its various species of white, brown, and black is a close relative of rapeseed. The rapeseed-mustard group includes brown sarson, raya, and toria crops. Indian mustard (*Brassica juncea* L.) is predominantly cultivated in Rajasthan, UP, Haryana, Madhya Pradesh, and Gujarat. It is also grown under some nontraditional areas of South India including Karnataka, Tamil Nadu, and Andhra Pradesh. The crop can be raised well under both irrigated and rainfed conditions. Being more responsive to fertilizers, it gives a better return under irrigated conditions. Brown sarson (*B. Rapa* ssp. *sarson*) has 2 ecotypes lotni and toria. Yellow sarson (*B. Rapa* var. *trilocular*) is cultivated in Assam, Bihar, Orissa, and West Bengal as a rabi crop. In Punjab, Haryana, UP, Himachal Pradesh, and Madhya Pradesh, it is grown mainly as a catch crop.



1.2. Oil seeds

Nine oilseeds are the primary source of vegetable oils in the country, which are largely grown under rain fed conditions over an area of about 26 million ha. Among these, soybean (34%), groundnut (27%), rapeseed & mustard (27%) contributes to more than 88% of total oilseeds production and more than 80% of vegetable oil with a major share of mustard (35%), soybean (23%) and groundnut (25%).

1.3. Varieties of Mustards

India is a major producer of mustard and oilseeds in general. There are three main varieties of mustards in the world. Black mustard oil, white mustard oil, and Brown mustard oils are the main varieties. Black mustard oil or Banarasi Rai is derived from black mustards and has a spicy and pungent flavor and aroma. Brown Indian mustard is another type of mustard that is grown traditionally in India but is now grown in other places too. White mustard or safaid rai is decidedly pungent as it contains particular substances. Producing yellow flowers, It has a hairy stem and the seeds of the plant are large and white. Black mustard is self-sterile and it grows well in temperate climates. it has been grown in Europe since the 13th century. It has recently been

Introduced for cultivation more recently in the northern half of the country. Alba and Hirta are two types of mustard varieties grown in southern Europe and West Asia. they are grown during the winter times in Northern India alone as the climate is suitable for it.

Mustard has high commercial value and mustard is the principal oilseed grown in India. While some varieties yield more oil, others are more pungent in taste. Traditionally, oil extraction took place using oil ghani technology. The cold pressing technology is used here and therefore, it is more highly valued and priced. Mustards are used as fuels also and they are used in the production of biofuels as it is renewable. After the extraction of the oil, the remaining part can be utilized effectively as a pesticide.

Important variety of Mustard seed released from IARI

- Pusa Double Zero Mustard 31 (PDZ-1)
- Pusa Mustard 30 (LES-43)
- Pusa Swarnim (IGC-01)
- Pusa Aditya (NPC- 9)
- Pusa Agrani (SEJ-2)
- Pusa Mahak (JD-6)
- Pusa Mustard 25 (NPJ-112)
- Pusa Mustard 26 (NPJ-113)
- Pusa Mustard 27 (EJ-17)
- Pusa Mustard 28 (NPJ-124)
- Pusa Tarak (EJ-9912-13)
- Jagannath (VSL-5)
- Pusa Karishma (LES-39)

- Pusa Vijay (NPJ-93)
- Pusa Mustard 21 (LES-1-27)
- Pusa Mustard 22 (LET-17)
- Pusa Mustard 29 (LET-36)

1.4. Importance of Mustard oil

- Mustard oil has 1.88 gm of protein and 0.44 mg zinc for the growth and development of the body.
- It comprises about 38.92 mg calcium, helpful for bones health,
- Calories: 100 gm mustard oil contains about 884 calories which are a source of energy.
- Mustard oil contains 3% vitamin A, which is helpful for the normal vision of eyes, and 5% vitamin C which serves as a coenzyme for metabolic functions.
- It contains about 12 gm saturated fat, 9.96 mg selenium for liver and muscular health, 22.28 mg magnesium which is essential as a cofactor for oxidative phosphorylation.
- 34 mg vitamin E present in mustard oil which, is a strong antioxidant, helps to reduce the oxidation effect of fat.
- It contains 1120 mg sodium and 151 mg potassium which helps to control the acid-base balance in our body.
- In mustard oil MUFA and PUFA are present in good amounts; both play a vital role in heart safety among other oils having a high amount of saturated fat.
- Mustard oil contains a favorable ratio of linolenic and linoleic acids with a high level of oleic acid. This ratio is safe from other edible oils.
- Glucosinolate is the major antioxidant of mustard oil, which serves medicinal utility to reduce the bacterial and fungal effect.
- The high amount of alpha-linolenic acid present in mustard oil helps to control the high cholesterol level and heart disease.



1.5. Major component of Mustard oil

The characteristic pungent flavor of mustard oil is due to allyl isothiocyanate. Mustard oil has about 60% monounsaturated fatty acids (42% erucic acid and 12% oleic acid); it has about 21% polyunsaturated fats (6% the omega-3 alpha-linolenic acid and 15% the omega-6 linoleic acid), and it has about 12% saturated fats.

➤ FLAVOUR AND SMELL

Mustard oil's well-recognized flavour comes from its content of Allyl isothiocyanate. Much like coffee beans are known to revive our sense of smell, mustard oil too has a similar effect owing to its very distinct smell. As seasoned chefs and everyday cooks tend to sniff kitchen ingredients before they use them, a whiff of mustard oil awakens their sense of smell, making it easier for them to identify a variety of fragrances, like the special smell of Indian spices.

Mustard plants belong to the family of Brassicas, which also include turnips, cabbage, and other vegetables. Its flavor thus comes from the chemical concoctions it shared with the other members of the Brassicas family.

1.6. Statistics

➤ Global scenario

Surging penetration of processed foods is expected to continue driving consumption of edible oils in the country. Strong marketing activities by leading edible oil brands, changing tastes and preferences of consumers, expanding population, and shifting consumption pattern towards branded oils are leading to rising consumption of edible oils in the country. The edible oil market in India is projected to grow from around \$21.5 billion in 2019 to \$35.2 billion by 2025 due to increasing disposable income and rising consumer awareness about healthy lifestyle & wellness.



CHAPTER -2

PROCESSING TECHNOLOGY

2.1. Product uses

- **Antifungal and antibacterial:** Mustard oil is widely used due to its health benefits when used externally and internally. One of the health benefits of mustard is that it is an antibacterial and anti-fungal. The oil when taken internally fights bacteria in the intestines and the colon while externally; it is used to treat rashes as well as bacterial and fungal infections on the skin. The presence of Allyl Isothiocyanate in mustard oil prohibits fungal growth, and spread of fungal infections that may have already occurred.

- **Hair revitalization:** Mustard seed is also used as a hair revitalizer whereby it is used in the treatment of itchiness, dandruff, baldness and greying hair. This is due to the presence of minerals and vitamins in the oil that heals dryness and itchiness of the scalp in addition to stimulating hair growth.

- **Skin therapy:** Mustard oil is also widely used in body massage due to its health benefits on the skin. The oil contains vitamin E that protects the skin damage caused by ultraviolet lights in addition to promoting immunity and blood circulation. Caution should however be taken when using mustard oil to massage babies as the oil is believed to damage skin permeability.

- **Cardiac health improvement:** The oil is also believed to lower health related illnesses if consumed moderately. This is due to the presence of mono-saturated and poly-saturated fats that helps in reducing bad cholesterol in the body.

2.2. Oil Extraction process

The process of manufacture is well established. To begin with, dry mustard seeds are fed to oil extractor expeller wherein about 90-95 % of the oil is extracted.

The processing technology is given below:



➤ Oil Extraction

The process of manufacture is well established and conventional. To begin with, dry mustard seeds are fed to an oil extractor expeller wherein about 90-95 % of the oil is extracted.

➤ Raw material

- Mustard seeds & Packing material

2.3. The processing technology is given below

✓ Seed Drying

The mustard seeds are dried in the sun. This step is essential in removing any water that could deteriorate the oil extraction process

✓ Mustard Seeds Cleaning

The dried mustard seeds are then cleaned, whereby all the dirt and foreign objects are removed from the mustard seeds to ensure the extracted oil is pure and of high quality.

✓ Mustard Seeds Heating

The mustard seeds are then heated before oil pressing starts. Heating the seeds increases the quantity of the yield. The process also increases the availability of protein in the by-product seed cake that is used for making animal feeds.

✓ **Mustard Oil Extraction**

Well-prepared mustard seeds are automatically fed into the mustard oil pressing machine where, depending on the volume to produce approximately 26 -30 % oil, the crushing and pressing are continued further to extract all the oil from the seed cake.

✓ **Mustard Oil filtration**

The final step involves filtering the extracted oil to remove impurities from the oil before the oil is bottled and stored. After filtration, the mustard oil is ready for filling, sealing, and packaging, now the mustard oil is filled in different sizes of a bottle according to market demand and sent for the market.

Flow chart of mustard oil processing



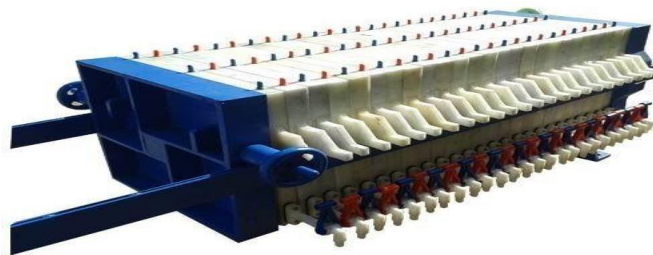
2.4. Equipment involved

➤ Heavy duty oil expeller with Cooking/ feeding kettle

An oil expeller is a mechanical device or machine used to grow oilseeds and for extracting oil from raw materials. An oil expeller is mainly used for two extraction processes that include chemical and mechanical extraction.



- **Filter press:** A filter press is a batch operation, fixed volume machine that separates liquids and solids using pressure filtration. The extracted oil has some impurities. These oils are sent into the filter press for further filtration.



➤ Other accessories

- Pulley, V Belts, Pipelines, Pipe Fittings, Valves, Etc.

2.5. PROJECT COMPONENTS

Land

The required land for mustard oil processing is estimated to be around 1000-1500 sq.ft.

Civil Work

Workshop Area- This area includes the space for processing, cleaning, sorting and, processing, packaging processes and laboratory. Total workshop area is approx. 500-700 Sqft.

Inventory Area- This area includes the storage space for all the raw materials and storage space and finished goods. Total inventory area is approx. 300 Sqft.

Office Area – This space includes staff working region. Total workshop area is approx. 300 Sqft. (Land and building requirement may vary depending on the size of project)

Misc. Assets

- Water Supply Arrangements
- Furniture
- Laboratory for testing

Power Requirement

With semi-automatic machines and equipment with manual handling, the Power Required is about: 10-12 kW, to operate this plant. (It is also depend on Project size and machines specification)

Manpower Requirement

Men and women both are involved in this. For a small unit to begin with around 5-6 people can work.



CHAPTAR- 3

PACKAGING TECHNOLOGY OF MUSTARD OIL

3.1. Packaging aspects of oils

Bulk quantities of oils are packed and transported in inexpensive tin containers and galvanized iron drums and sold in loose form by retail vendors. This practice gives scope to adulteration with less expensive oil, which have been a cause of ill health in India and many other parts of the world. As a consequence, the governments of these countries have been trying to enforce compulsory packing of edible oils in inexpensive plastic unit packages. Distribution of oils / fats in-unit consumer packs is becoming increasingly popular as it assures quality products packed under hygienic conditions in unadulterated forms. In view of their logistic advantages such as lightweight, low cost and convenient shapes and tailor-made functionality, plastics in rigid, semi-rigid, and flexible forms are replacing conventional bulk packages.

Proper packaging plays a vital role in the marketing system by retardation of deterioration and prevention of social hazards of adulteration and possibility of under-weighting.

➤ Hydrolytic rancidity:

Moisture is one of the chief causes of spoilage of oils. Even though fats and oils are hydrophobic in nature, even small variations in moisture content can be detrimental to the keeping quality of the product as it alters the equilibrium relative humidity of the product. Unlike other common foods, water holding capacity increases with temperature in the oil. Hydrolytic rancidity is caused by moisture due to the hydrolysis of oils to glycerol and free fatty acids which are responsible for the off odor. This is catalyzed by enzyme (lipase) activity and increases with time.



➤ **Oxidative rancidity**

This is caused by oxygen resulting in the oxidation of oils and fats. The extent of oxidation is also affected by moisture content. Aldehydes and ketones are the final products of oxidation responsible for the rancid odor of oils. Unrefined oils are less prone to oxidation than refined oils due to the presence of natural antioxidants and pigments.

➤ **Tainting by extraneous sources and from packaging materials and components:**

Even though vanaspati is chemically stable due to hydrogenation, it is equally susceptible to odor pickup from external sources and therefore requires to be protected.

➤ **Growth of microorganisms due to increase in water activity:**

This can occur at moisture content corresponding to above 65% RH. Colour and vitamin degradation in oil occurs due to exposure to UV light and further accelerated by oxygen. Therefore, oil needs to be protected from light by using opaque and pigmented packaging materials.



➤ **Packaging Material Requirements**

To prevent or retard chemical deteriorations of fats and oils, and for easy handling, transportation and to ensure that the product reaches the ultimate consumer in a safe condition and to satisfy legal requirements for their sale, the packaging material should maintain chemical quality, purity, colour, flavour, and other required attributes. Therefore, the material should be a barrier to water vapour, oxygen, and odor and also should be grease resistant and fulfil the following requirements.

- ❖ Should be a barrier to volatile and taint proof towards prints, inks, the solvent used for inks, adhesive, etc.

- ❖ Should be opaque or pigmented to screen the UV light.
- ❖ Should have good impact resistance to prevent loss or contamination due to breakage or leakage of the package.
- ❖ Should possess good stiffness, tensile strength, tear-resistance, and heat seal strength to work well on automatic Form-Fill-Seal machines (for flexible films).
- ❖ Should be non-toxic and be compatible with the product.
- ❖ Should be tamper-proof and have airtight sealing.
- ❖ Should be economical, easily available, printable, and disposable.

3.2. The following packaging materials are commonly used.

➤ Rigid Containers: Metal/Glass/ Plastic

Square/cylindrical metal containers of 15 kg capacity are used as institutional packs and 2 to 5 kg square containers for vanaspati and cylindrical containers for oils are in use as family packs. Metal containers act as a perfect barrier to moisture and oxygen, shield the effects of harmful UV radiation and offer a shelf life of one year.



The escalating cost of conventional metal containers and the possible adulteration during retail sales have led to the use of alternate economical packaging material. Tin-free steel cans coated with epoxy phenolic lacquer are found to offer the required shelf life to oil. Although glass bottles for oils and jars for ghee are being used, heavyweight and fragility restrict their use. Now plastics are widely replacing expensive metal containers due to their lightweight, low cost, optimum barrier properties, strength, and availability in different shapes and sizes. PVC and PET bottles have replaced tin containers to some extent. Even though PVC became

popular for its low cost and excellent grease resistance property.



➤ **Semi-rigid Packages**

In view of the logistic and cost advantages, plastics in semi-rigid and flexible forms have become more popular. Lined folding carton is made from suitable laminates like Met. PET/PE, Al. foil laminate which gives required protection to the product and the outer duplex board carton is meant for extra protection to the primary pouch, graphic design, and display. Studies have indicated that the shelf life of double-filtered groundnut oil and refined sunflower oil packed in the foil-based carton was better than that in PET bottles. Nylon based bag-in-box with built-in tap system is also available for oil packaging in view of convenience of easy opening and reclosing system and cost-effectiveness. Also, while dispensing oil, the volume of headspace air does not increase as in the case of bottles and jars and thus helps in controlling oxidation. The minimum unit pack size commonly available is one liter and its cost is beyond the purchasing power of the common man in the country. Tetra Pak cartons of varying capacity from 200 ml to 1 liter are also being used for the packaging of oils.

➤ **Flexible Pouches**

The minimum unit pack size in rigid/ semi-rigid containers is 500 ml, a quantity that is too large to purchase by the common man in the country. Hence even today, edible oil is being sold loose. The high packaging cost of rigid/semi-rigid packs and lack of assurance on quality and quantity in buying loose oil has led to the introduction of flexible pouches as retail packs. Flexible packaging materials have the following advantages:

- Optimum balance between cost and benefits,
- Lower storage and handling costs,
- Amenable to high-speed FFS machines.

Unit packages in different forms like pillow pouch, flat pouch, three sides sealed pouch, 4

sides sealed pouch, stand up pouch are available. Selection of packaging materials depends upon several factors such as nature and type of oil, storage conditions, expected shelf life, properties of packaging materials, cost, etc.



Rigid packages for edible oils and fats, their costs and shelf life offered

Sl. No.	Size (kg)	Packaging material	Approximate Cost(Rs)	Weight (g)	Approximate shelf life
1	15	Tinplate can new	42	900	About 1 year
2	15	HDPE jerry can	33	500	> 180 days
3	5	HDPE jar	14	185	> 180 days
4	2	Tinplate can	8		About 1 year
5	2	HDPE jar	8	90	180 days
6	2	PVC Bottle	6		180 days
7	1	PET Bottle	3	33	180 days
8	1	PVC Bottle	4		180 days
9	1	HDPE Container	5.60		180 days
10	0.5	PET bottle	2	18	180 days



➤ **Mono films:**

The keeping quality of oils were tested in LDPE, HDPE, and PP pouches. They were not at all suitable for various reasons. The grease resistance of LDPE is only seven days at 38°C. Even 75- 125 μm thick LDPE pouch was sticky within

15 days of packing. It is also prone to environmental stress cracking. HDPE has the drawbacks like cracking and higher heat sealing temperature. PP has a very poor impact strength. In spite of careful filing and sealing without contaminating the sealing area, leakages were observed in many pouches during storage under accelerated storage conditions. All polyolefin thus failed to offer the desired physical protection. Because of their poor flavor barrier properties, the freshness of refined oils and the characteristic flavor of unrefined oils were lost within very few days of storage. As they are very poor oxygen barriers also, the maximum shelf life of only 15-20 days and 30-40 days were observed under accelerated and normal storage conditions respectively. Hence, mono films fail to offer the necessary physical or chemical protection for oils. Only 100 μm HMHDPE pouch, when tested for hydrogenated



oil (vanaspati), was found to satisfy the BIS requirement.

➤ **Two-layer films**

The keeping quality of different oils were tested in two-layer co-extruded films like HDPE/LDPE, HDPE/ Ionomer, PP/Ionomer, and PET/Ionomer laminate, etc. Even though co-extruded HDPE/LLDPE film improved with respect to its grease resistance, environmental stress cracking, etc., over LDPE and sealability and cracking resistance over HDPE, leaker rates were still high and it emerged as the cheapest material for packing oil. The good grease resistance, ability to give good heat seal even with contamination, low-temperature sealing, and high hot tack renders ionomer the best sealant layer for oils and fats.

Leaker rates were reduced substantially with the usage of ionomer. EAA also was found comparable to ionomer in these respects. Ionomer or EAA as the sealant contact layer offered the desired physical protection from chemical deterioration.

➤ **Three-layer structures**

Laminates like PET/HDPE-LDPE and met PET/HDPE- LDPE offers good protection as indicated by shelf life of 60-70 days and 120-180 days under accelerated and normal storage conditions, respectively; foil based laminate pouches offer more than 180 days storage life under both the storage conditions. But PET and foil-based laminates are available as preformed pouches and are to be filled without contaminating the sealing area as they do not contain EAA or Ionomer.

Yields and costs of unit packaging materials

Flexible packaging material	Thickness, µm	Yield, m ² /kg	Approx. cost, Rs/kg
HDPE	25	41.2	70
HM-HDPE	25	40.5	70
CPP	25	44.0	65
BOPP	25	46.0	100
LDPE/HDPE	25/25	21.0	70
HMHDPE/LDPE/LLDPE	110	11.0	82
LLDPE/HDPE/LDPE/LDPE/LDPE	95	11.3	90

LLDPE/BA/PB/BA/LDPE	95	10.7	170
LLDPE/BA/PA/BA/EAA	95	10.7	200
PET/LDPE	12/37	19.6	200
PET/HDPE-LDPE	12/37	18.6	150
MET.PET/LDPE	12/37	19.6	225
MET.PET/HDPE-LDPE	12/100	9.5	200
PAPER/A1 FOIL/LDPE	40/9/37	10.2	180
PET/A1 FOIL/LDPE	12/9/37	13.3	260



3.3. BIS Standards/Regulations

- Oil is a commodity consumed by every person. It may become health hazardous unless protected properly.
- Therefore, different standards like PFA, Agmark, and BIS are formulated which give specifications on the quality parameters of oil at the time of sale, the shelf life of the oil in different plastic packaging materials, and specifications on safety and performance of packaging materials.
- The shelf life required for oil in PET/PVC bottles is 60 and 180 days under normal and accelerated storage conditions, respectively.
- The vinyl chloride (VC) monomer content in PVC should be < 1 ppm and VC migration into oil < 10 ppb.

BIS Specifications for plastic packaging materials for packing edible oils/fats

IS No.- Year	Specification
12724-1989	Flexible packaging materials for packaging of refined edible oil
12883-1989	Polyvinyl chloride (PVC) bottle for edible oils.
12887-1989	Polyethylene terephthalate (PET) bottles for packaging of edible oils. 11352-1985 Specification for flexible packs for packaging vanaspati.
10840-1994	Blow molded HDPE container for packaging of vanaspati.

3.4. Future Trends

Considerable progress has been made in the country in the field of oils and fat packaging.

Multi-layer films with a variety of film structures that have made a significant entry in food packaging can be explored in view of their tailor-made barrier and functional properties. Metallised BOPP as one of the structures in the multilayer film is being considered. Although costlier, Met.PET/HD-LD laminate pouches can be considered for the better shelf life of oils. Apart from multilayer films, multilayer bottles can have a good future for oils due to their good barrier properties. Stretch blown PET and PVC bottles with good barrier and strength properties and cost-effectiveness are finding more application. Opaque, pigmented HDPE containers offer good protection to oil from light. Bag-in-box with tap and laminate pouches with screw cap spout has great potential in oil packaging in view of their cost-effectiveness and convenience over conventional packages. Tetra Brik packs, in view of their barrier properties, can offer longer storage life.



CHAPTER-4

FOOD SAFETY REGULATIONS AND STANDARDS FOR FATS, OILS AND FAT EMULSIONS

4.1. FSSAI STANDARD

Rape-seed oil (toria oil) mustard oil (sarson ka tel) means the oil expressed from clean and sound mustard seeds, belonging to the *compestris*, *juncea* or *napus* varieties of *Brassica*. It shall be clear free from rancidity, suspended or foreign matter, separated water, added colouring or flavouring substances or mineral oil. It shall conform to the following standards.

Butyro-refractometer reading at 40°C	58.0 to 60.5
OR	
Refractive index at 40°C	1.4646 to 1.4662
Saponification value	168 to 177
Iodine value:	96-112: Polybromide test shall be Negative
Unsaponifiable matter	Not more than 1.2 per cent by weight
Acid value	Not more than 6.0
Bellier test (Turbidity temperature - Acetic acid Method)	23.0oC to 27.5oC
Test for Argemone oil	Negative
Test for Hydrocyanic Acid	Negative

However, it may contain food additives permitted in these Regulations and Appendices Further, if the oil is obtained by the method of solvent extraction and the oil imported into India whether obtained by solvent extraction or otherwise, it shall be supplied for human consumption only after refining and shall conform to the standards laid down under regulation 2.2.1 (16). The oil so refined shall not contain Hexane more than 5.00 ppm.

International Numbering System (INS) for Food Additives- identifying the food additive and their synonyms as published by the Codex on 23.11.2005 Codex for mustard oil/ Rapeseed oil is

“277” INS number - 441 Super glycerinated hydrogenated rapeseed oil as Emulsifier



4.2. SANITARY AND HYGIENIC REQUIREMENTS FOR MANUFACTURER/ PROCESSOR/HANDLER

The place where edible oil is processed manufactured 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 place 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. 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.
7. 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 final product. (Copper or brass vessels shall have proper lining).
8. 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.
9. All Equipments shall be placed well away from the walls to allow proper inspection.
10. There should be efficient drainage system and there shall be adequate provisions for disposal of refuse.
11. The workers working in processing and preparation shall use clean aprons, hand gloves, and head wears.
12. 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 products.
13. All member and working staff 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 handling processes.
14. Eating, chewing, smoking, spitting and nose blowing shall be prohibited within the premises especially while working in lab.
15. All articles that are stored or are intended for sale shall be fit for consumption and have proper cover to avoid contamination.
16. The vehicles used to transport the product must be maintained in good repair and kept clean.
17. While in transport in packaged form or in containers shall maintain the required temperature.
18. Insecticides / disinfectants shall be kept and stored separately and away from manufacturing / storing/ handling areas.

4.3 Labelling Standards

Labelling requirements for packaged food products as laid down in the Part VII of the Prevention of Food Adulteration (PFA) Rules, 1955, and the Standards of Weights and Measures (Packaged Commodities) Rules of 1977, require that the labels contain the following information:

1. Name, trade name or description
2. Name of ingredients used in the product in descending order of their composition by weight or volume
3. Name and complete address of manufacturer/packer, importer, country of origin of the imported food (if the food article is manufactured outside India, but packed in India)
4. Nutritional Information
5. Information Relating to Food Additives, Colours and Flavours
6. Instructions for Use
7. Veg or Non-Veg Symbol
8. Net weight, number or volume of contents
9. Distinctive batch, lot or code number
10. Month and year of manufacture and packaging
11. Month and year by which the product is best consumed
12. Maximum retail price

4.3.1 Wherever applicable, the product label also must contain the following

The purpose of irradiation and license number in case of irradiated food. Extraneous addition of colouring material. Non-vegetarian food – any food which contains whole or part of any animal including birds, fresh water or marine animals, eggs or product of any animal origin as an ingredient, not including milk or milk products – must have a symbol of a brown colour-filled circle inside a brown square outline prominently displayed on the package, contrasting against the background on the display label in close proximity to the name or brand name of the food.

Vegetarian food must have a similar symbol of green colour-filled circle inside a square with a green outline prominently displayed.

All declarations may be: Printed in English or Hindi on a label securely affixed to the package, or Made on an additional wrapper containing the imported package, or Printed on the package itself, or May be made on a card or tape affixed firmly to the package and bearing the required information prior to customs clearance.

Exporters should review the Chapter 2 of the “FSS (Packaging and Labeling) Regulation 2011” and the Compendium of Food Safety and Standards (Packaging and Labeling) Regulation before designing labels for products to be exported to India. FSSAI revised the labelling Regulation and a draft notification to that effect was published on April 11, 2018, inviting comments from WTO member countries and the comments received are under review and the publication date remains unknown.

According to the FSS Packaging and Labelling Regulation 2011, “pre-packaged” or “pre packed food” including multi-piece packages, should carry mandatory information on the label.



Contact Us

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