

PM Formalisation of Micro Food Processing Enterprises Scheme

HANDBOOK OF MUSTARD SAUCE PROCESSING



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CHAPTER 1

INTRODUCTION

1.1 ABOUT

Mustard is a broadleaf, cruciferous, cool-seasoned annual oilseed crop produced primarily for the condiment market. It is an annual herb cultivated as oil seed crop or as vegetable or as fodder, of which, 3 species are known for its condiment value. They are pale yellow or white mustard (*Brassica hirta*), brown mustard (*Brassica juncea*) and black mustard (*Brassica nigra*). The leaves of the plant are alternate, long, bristly branched, petiolate, hairy on both sides. Flowers are small, yellow with 4petals, cruciform. Seeds are 1.5-3mm. Mustard seeds generally take eight to ten days to germinate if placed under the proper conditions, which include a cold atmosphere and relatively moist soil. Mature mustard plants grow into shrubs. It grows well in temperate regions.

Mustard plant is one of the numerous plants containing seed that are used as condiments. Seeds of mustard plant are very much used in cooking. Mustard paste or mustard sauce prepared from mustard seeds are also used as condiment. Mustard greens are edible leaves from a diversity of mustard plant. Mustard plaster is a traditional medical management used to take care of minor ailments, made from mustard seed powder. Mustard and cress, a combination of mustard seeds and green seeds cultivated as sprouts is used as sandwich filling or garnishing for salad or other dishes.

The major processed products are mustard powder used in the manufacture of mayonnaise, dried or dehydrated mustard leaves, whole mustard seeds etc. Whole mustard is used as a flavouring agent in Indian cooking, whereas ground mustard provides flavour and consistency in Bengali fish curries. Mustard flour has preservative and antioxidant properties in addition to providing flavour and colour.



Indian name of Mustard

Hindi: Rai, Banarasi rai, Kalee sarson Gujarati: Rai Kannada: Sasave Kashmiri: Aasur, Sorisa Malayalam: Kaduku Punjabi: Rai, Banarasi rai, Kalee sarson Sanskrit: Asuri, Bimbata Tamil: Kadugo Telugu: Avalu Urdu: Rai, Banarasi rai, Kalee sarson

Mustard Seeds

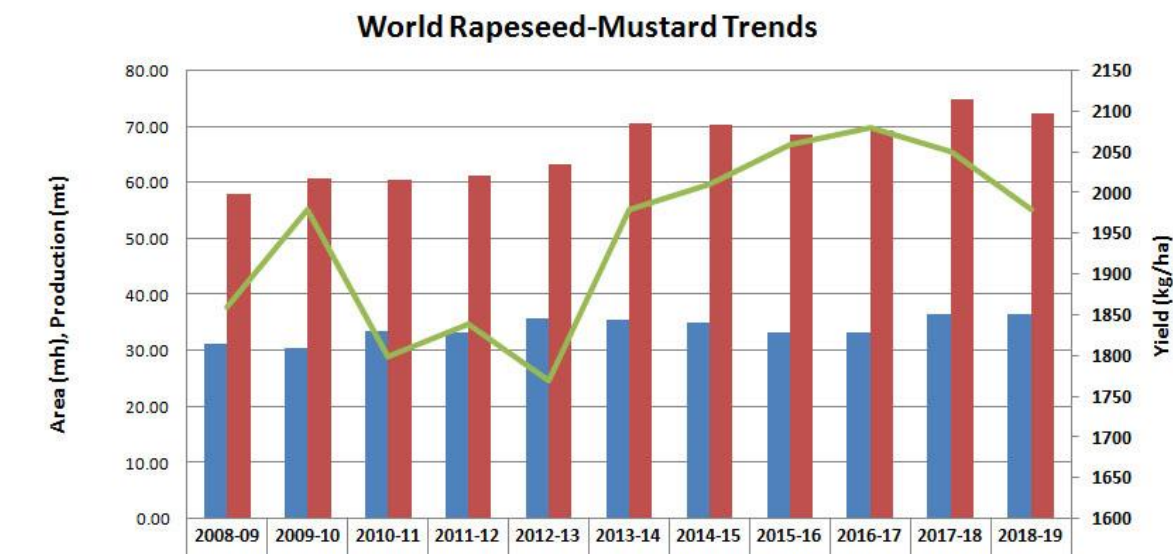
Mustard seeds are the small round seeds of three different plants: black mustard, brown Indian mustard, and white mustard. Brown mustard seed is spherical, medium in size and has a nutty, sweeter and mellow burning flavour. The whole mustard seed has no flavour, but can provide a pungent taste after chewing. The severity of pungent aroma varies with different mustards. The white or yellow type has a less pungent aroma than brown mustard seeds, which have a very pungent aroma. Black mustard seeds have the highest pungency. Mustards have been used in traditional folk medicine as a stimulant, diuretic, and purgative to treat a variety of ailments including peritonitis and neuralgia. They are also used in mustard plasters to treat rheumatism, arthritis, chest congestion, back pain and muscular ache. Prolonged application of mustard plaster can result in burns to the skin and nerve damage. Mustard seeds contain a variety of minerals, including iron, magnesium, zinc, calcium, and phosphorus. Getting adequate amounts of these minerals is essential for the normal function of many biological and biochemical processes within your body and can help prevent a mineral deficiency, which can have potentially debilitating side effects. Though brown mustard seed has been a well-known and generally used spice in India for centuries, it is employed in recent medication not only in India or China, but in Europe and North America, too.



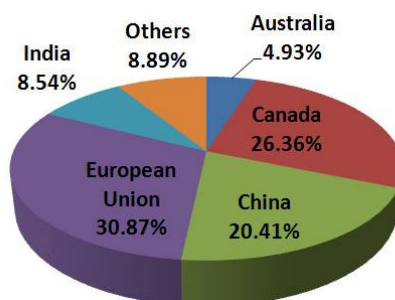
1.2 MUSTARD PRODUCTION

The estimated area, production and yield of rapeseed-mustard in the world was 36.59 million hectares (mha), 72.37 million tonnes (mt) and 1980 kg / ha, respectively, during 2018-19 (Globally, India account for 19.8 % and 9.8% of the total acreage and production (USDA). During the last eight years, there has been a considerable increase in productivity from 1840

kg/ha in 2010-11 to 1980 kg/ha in 2018-19 and production has also increased from 61.64 m t in 2010-11 to 72.42 m t in 2018-19.



(Source: ICAR-DRMR)



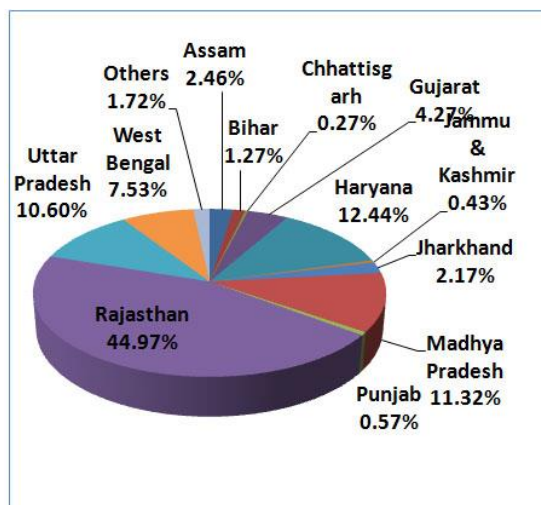
Rapeseed-Mustard Production in world- 2018-2019

(Source: ICAR-DRMR)

Rapeseed–mustard crops in India are grown in diverse agro climatic conditions ranging from north-eastern / north western hills to down south under irrigated/rainfed, timely/late sown, saline soils and mixed cropping. Indian mustard accounts for about 75-80 % of the 6.23 m ha under these crops in the country during 2018-19 crop season.

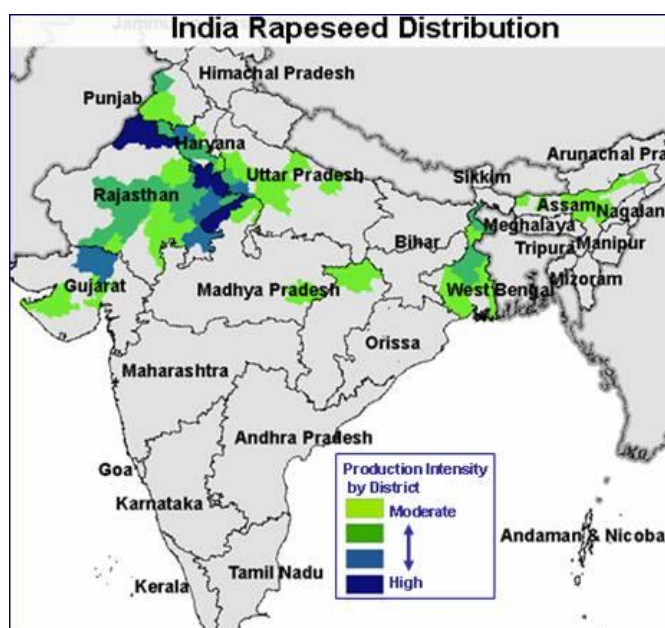
In India, mustard seed is mainly grown in North West parts of India. Rajasthan and Uttar Pradesh are the major producing States in the country. The production from Rajasthan is highly monsoon dependent. The other significant producers are Madhya Pradesh, Haryana, Gujarat, West Bengal and Assam. Mustard Seed is a Rabi season crop sown during Oct-Nov and harvested during March -April. Marketing season starts from March and end during Feb.

Rajasthan is the most giant rapeseed-mustard growing state and alone contributes 43% of the total mustard seed production in India



Rapeseed-Mustard Production in India- 2018-2019

(Source: ICAR-DRMR)



(Source: IPAD-USDA)

Mustard is being grown in India since the very early ages. Mustard or sarson as it is known in Hindi has been mentioned in the Ayurvedic Simhatas. During the past five decades, there has been a sharp increase in the production of mustard in India. The huge jump in the production of mustard has been attributed to the development and implementation of new and improved technologies in India. The farmers have shown a widespread acceptance of the new

technologies and have been boosted by the favourable marketing policies of the Government of India.

India: Commodity, Oilseed, Rapeseed, PSD						
Oilseed, Rapeseed Market Begin Year	2016/2017		2017/2018		2018/2019	
	Oct 2016		Oct 2017		Oct 2018	
	USDA Official	New Post	USDA Official	New Post	USDA Official	New Post
India						
Area Planted	6600	7056	6600	6700	6500	6940
Area Harvested	6065	7056	6000	6700	6000	6940
Beginning Stocks	469	469	439	439	419	304
Production	6620	6620	6450	6500	6000	7200
MY Imports	0	0	0	0	0	0
Total Supply	7089	7089	6889	6939	6419	7504

(Source: Assessment of commodity and trade-USDA)

1.3 HEALTH BENEFITS OF MUSTARD

1. Source of beneficial antioxidants

Mustard contains antioxidants and other beneficial plant compounds thought to help protect the body against damage and disease.

- **Isothiocyanates.** This compound is derived from glucosinolates, which may help prevent cancer cells from growing or spreading.
- **Sinigrin.** This glucosinolate-derived compound is responsible for mustard's pungent taste and thought to possess anti-inflammatory, antibacterial, antifungal, anticancer, and wound-healing properties.

Mustard is also rich in carotenoids, isorhamnetin, and kaempferol. Research links these flavonoid antioxidants to protection from conditions like type 2 diabetes, heart disease, and perhaps even some types of cancer

2. May offer protection against certain diseases

The mustard plant has been used as a traditional remedy against various ailments for centuries. Recently, scientific evidence has emerged to support some of mustard's proposed benefits.

- **May protect against certain types of cancer.** Test-tube and animal research suggests that the glucosinolates in mustard may help kill cancer cells or prevent them from spreading. However, more human research is needed.
- **May lower blood sugar levels.** One small human study suggests that taking blood-sugar-lowering medication together with a mustard green decoction may lower blood sugar levels in people with type 2 diabetes more effectively than medication alone.
- **May protect against psoriasis.** Animal studies suggest that a diet rich in mustard seeds may help reduce inflammation and promote the healing of psoriasis-caused lesions.
- **May reduce symptoms of contact dermatitis.** Animal research suggests that mustard seeds may speed healing and reduce symptoms of contact dermatitis, a condition in which the skin develops an itchy rash following contact with an allergen.
- **May offer protection against infections.** The antioxidants in mustard seeds may offer some protection against bacteria and fungi, including *E. coli*, *B. subtilis*, and *S. aureus*.

3. Other Benefits

- Speeds up metabolism
- Stimulates and aids digestion
- Decreases symptoms of rheumatoid arthritis
- Lowers high blood pressure
- Soothes sore throats, bronchitis, and pneumonia
- Aids in helping reduce severity of asthma
- Helps heal bee stings

Nutritional content

Sl. No.	Nutrient	Amount/(100g)
1.	Energy	508 kcal
2.	Protein	26.08 gm
3.	Fat	36.24 gm
4.	Carbohydrate	28.09 gm

5.	Dietary Fibre	12.2 gm
6.	Sugars	6.79 gm
7.	Calcium	266 mg
8.	Magnesium	370 mg
9.	Potassium	828 mg

1.4 VALUE ADDITION

PRODUCT FORM	APPLICATION
Oil	Edible oil (India) Industrial uses Mayonnaise (Sweden) White mustard oil extract
Mustard Powder	Retailed as flour Ingredient in salad dressings, mayonnaise, BBQ sauce, pickles, processed meats
Ground Mustard (whole seeds, ground)	Meat products Seasoning for frankfurters, bologna, salamis, luncheon meats Salad dressings, pickled products, condiments
Cracked mustard seeds	Mustards, salad dressings Seasonings and topical blends
De-heated mustard (cold)	Finely ground: Myrosinase enzyme deactivated Processed cheese slices, bakery products and beverages Meat products Sauces Mayonnaise (can partially replace egg yolk) Tomato-based products (e.g. ketchup)

De-oiled ground mustard	Meat products (hot dogs, sausages, bratwurst, and processed deli meats) Creamy dressings Mayonnaise Applications include hot Chinese mustard, wasabi paste/powder, and Asian cuisine
Mustard Bran	Coarse flakes or ground to fine powder Natural thickener in sauces

1.5 MUSTARD SAUCE

Mustard sauce is made from the seeds of a mustard plant. The whole, ground, cracked, or bruised mustard seeds are mixed with water, vinegar, lemon juice, wine, or other liquids, salt, and often other flavourings and spices, to create a paste or sauce ranging in colour from bright yellow to dark brown and is generally thick with sharp taste. It can be consumed with sandwiches, barbeque meat, stir fry or for salad dressing.



CHAPTER 2

PREPARATION OF MUSTARD SAUCE

2.1 INGREDIENTS USED

Ingredients	Parts by weight (Percentage)
Mustard powder	20%
White vinegar	10%
White sugar	10%
Salt	10%
Turmeric	10%
Paprika	10%
Citric acid	0.5%
Cyclodextrin	0.5%
Water	19%

2.2 PROCESSING

1. Cleaning of Mustard seeds

When the seeds arrive from the harvester, they are visually examined for quality. They are then loaded onto conveyer belts and passed under water sprayers to remove dirt and other debris. After the seeds dry, they are stored in silos until ready to use.

2. Crushing and grounding

The seeds are loaded into roller mills, where large wheels crush and grind them into a flour. To obtain a desired degree of fineness, mustard seeds are subjected to numerous rounds of crushing.

3. Sieving of Bran and Husk

The crushed seeds are passed through 60 mesh sieves, so that the hulls and bran fall to a tray underneath. Heartier varieties of mustard may include the hulls.

4. Addition of liquids

The seed flour is loaded into large mixing vats and specific proportions of vinegar and/or water are added. The mixture is blended until a paste is created.

5. Addition of seasonings and flavours

Pre-measured amounts of seasoning and/or flavourings such as turmeric, paprika, citric acid etc are added to the paste and blended thoroughly until homogenised. At this stage the paste may also be passed through sieve to remove coarse particles to get fine smooth paste.

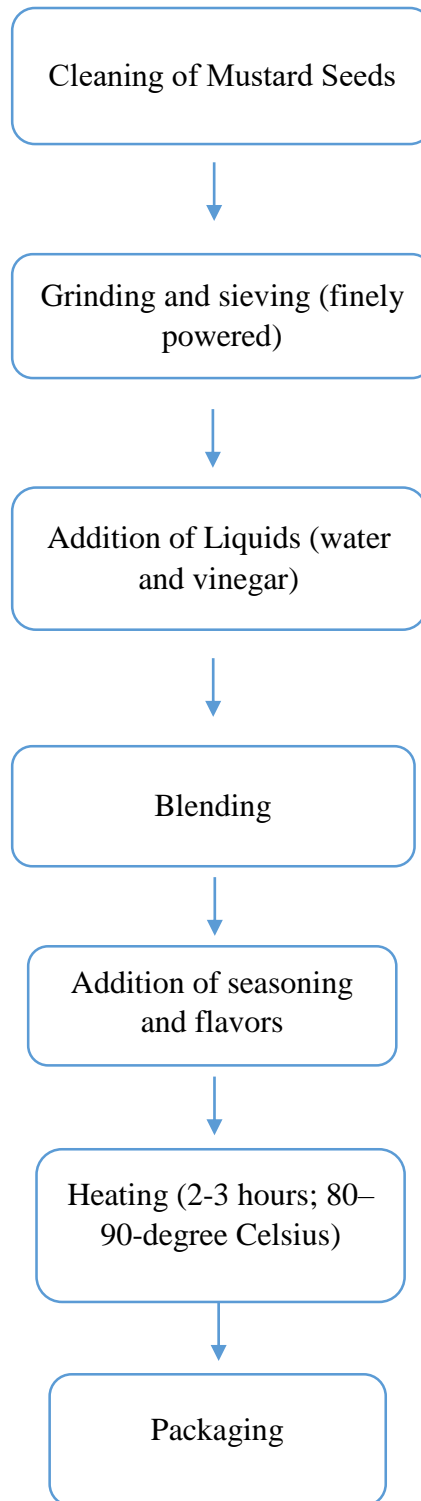
6. Heating

The mustard mixture is then heated to 80–90-degree Celsius temperature and allowed to simmer for a pre-determined time. It is then cooled to room temperature for overnight. Some varieties of Mustard are aged in large containers before they are bottled.

7. Packaging

Pre-measured amounts of mustard are poured into glass jars or plastic bottles that are moving along a conveyer belt. Lids are vacuum-sealed onto the tops of the containers. The containers are then loaded into cartons for shipment.

2.3 FLOW CHART



2.3 MACHINES USED

1. Automatic seed cleaner machine



This machine separates seeds of the same density but of different size and seeds of the same size but of different densities. An oscillating movement of the table causes the seeds to move at different rates across the deck. The lightest seeds float down under gravity and are discharged at the lower end, while the heaviest ones are kicked up the slope by contact with the oscillating deck and are discharged at the upper end.

2. Vertical Grinding mill



Vertical grinding mill uses Stones to basically crush and grind seeds of mustard into fine powder or flour.

3. Blending/Batch Mixer



This mixer doesn't simply mix; it emulsifies, homogenizes, solubilizes, suspends, disperses and disintegrates solids.

4. Electric heating Jacketed Kettle



It is used to heat the mustard sauce. 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.

5. Sauce Packaging Machine



The package is sealed from the top, bottom and the back fin seal. The bonding / sealing process is done by heat given by the jaws on the machine. After the filling and sealing process is completed.

CHAPTER 3

PACKAGING

Mustard sauce is made from yellow/brown mustard seed powder etc with the addition of salt, sugar, spices and vinegar. It is pasteurized to give the required shelf-life, but the basic principle of preservation is the use of vinegar, which inhibits the growth of spoilage and food poisoning micro-organisms. Other ingredients such as salt and sugar contribute to the preservative effect and the correct Preservation Index ensures that the product does not spoil after opening and can be used little at a time. Some sauces may contain a preservative such as sodium benzoate, but this is not necessary if an adequate Preservation Index is achieved.

3.1. SOURCE OF CONTAMINATION

The major source of sauce contamination is micro-organisms. The microbial load on the product before and after storage should, therefore, be carefully studied in order to avoid deterioration of product. Bacterial flora, fungal growth and yeast are some of the microorganisms frequently observed in packed sauces. As it is an acidic product, mustard sauces do not spoil easily. In order to maintain the product's quality more effectively, it is suggested that sauces (and any other processed food) be refrigerated after opening because refrigeration retards spoilage.

3.2 CRITERIA FOR PACKAGING MATERIAL

Packaging enhances the life span of many perishable food items. The package should offer sufficient barrier against light, moisture, gases, and other environmental factors. Apart from this, it should also protect the organoleptic characteristics (quality attributes) of sauces viz. colour, flavour, taste and overall acceptability. The package should prevent emission of off-flavours. The package must be “chemically clean and inert”, and it should be able to perform at high processing speeds. In order to protect leaching out of powerful flavour ingredients through film structures thereby causing de-lamination, chemical resistant adhesives and primers can be used to assure packaging integrity.

3.3 MAJOR CLASSIFICATION OF PACKAGING FOR MUSTARD SAUCE

Primary packing

Secondary packing

Tertiary packing

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 Mustard sauce, primary packaging available in the market are:

1. Glass Bottles

Bottles/ jars are commonly used for sauce. 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.



2. Small Flexible Pouches (Sachets)

One of the recent developments in this field is the introduction of a film/foil packet structure for a sauce. This packet structure is one of the first applications featuring a polyester-based extrusion coating on a film. The portion-controlled packet prevents emission of off-flavours in the sauce, scalping or leaching, as well as de-lamination that would occur with other films.



3. Stand up Pouches

Introduction of stand-up pouch for sauce packing is one of the innovations in the packaging field. This type of packing was designed with the objective to provide a cost effective and consumer friendly alternative to lay flat pouches with easy-pour-out and re-closing facilities. Generally, stand-up pouch is made up of 6 colour reverse printed laminate structure of a 10 μ PET / 120 μ -3 layer PE film, structurally providing the pack contents with physical, chemical and biological protection. Some important features of the stand-up pouch are:

- Value addition through packing
- An easy-to-use pack, which incorporates easy pourability and re-closing in its design
- Unique stand-up format providing greater display capabilities and brand imaging
- Automatic packing



4. Plastic bottles (PET bottles)

Although most companies opt for an oval shape, the production of squeeze bottles with a thin wall is on the rise. These are:

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



5. 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 sauce. 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.



Secondary Packing Available for Mustard sauce in market



- It is outside the primary packaging perhaps used to group primary packages together.
- Provides extra protection and transport strength
- Paper boards
- Cartons
- Reusable Plastic Crates

Tertiary 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

4.1 FOOD SAFETY AND STANDARDS (FOOD PRODUCTS STANDARDS AND FOOD ADDITIVES) REGULATIONS, 2011.

Category 2.3.28 Culinary Pastes / Fruits and Vegetable Sauces Other Than Tomato Sauce and Soya Sauce under regulation food safety and standards (food products standards and food additives) regulations, 2011

1. Culinary Pastes / Fruits and Vegetable Sauces Other Than Tomato Sauce and Soya

Sauce means a culinary preparation used as an adjunct to food, prepared from edible portion of any suitable fruit/vegetable including, roots, tubers & rhizomes, their pulps/purees, dried fruits, singly or in combination by blending with nutritive sweeteners, salt, spices and condiments and other ingredient appropriate to the product.

2. It may contain caramel but shall not contain any other added colour whether natural or synthetic. It shall meet the following requirements: —

Name of the Product	Total Soluble Solids (Salt free basis) (m/m)	Acidity % (as acetic acid)
Sauces/ Culinary Paste	Not less than 15.0 percent	Not less than 1.2 percent
Sauce	Not less than 8.0 percent	Not less than 1.0 percent

4.2 FOOD SAFETY AND STANDARDS (CONTAMINANTS, TOXINS AND RESIDUES) REGULATIONS, 2011

CONTAMINANTS, TOXINS AND RESIDUES

Crop contaminants and naturally occurring toxic substances: any crop contaminant specified in the corresponding entry in column (1) thereof in excess of quantities specified in the corresponding entry in column (3) of the said Table:

Name of naturally occurring toxic substances (NOTS)	Article of food	Maximum limits (ppm)
(1)	(2)	(3)
Saffrole	Soups and sauces	10

4.3 FOOD SAFETY AND STANDARDS (PACKAGING AND LABELLING) REGULATIONS, 2011

FSSAI Packaging General Requirements

1. A utensil or container made of the following materials or metals, when used in the preparation, packaging and storing of food shall be deemed to render it unfit for human consumption:— (a) containers which are rusty; (b) 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.

4.4 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.



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