



PM Formalisation of Micro Food Processing Enterprises Scheme

Processing of Dehydrated Carrot Pieces



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TABLE OF CONTENTS

	Page No.
Chapter 1: Introduction	
1.1 Origin and Distribution	3
1.2 Importance and Uses	3
1.3 Value Added Products from Carrots	7
1.4 Scope of Carrots processing Industry	8
Chapter 2: Preparation of Carrots Dehydrated Pieces	
2.1 Carrots Processing	9
2.2 Carrots Dehydrated Pieces	11
Chapter 3: Packaging of Carrots Dehydrated Pieces	
3.1 Factors lead to Spoilage of Pieces	17
3.2 Packaging Materials used	17
3.3 Future Trends	19
Chapter 4: Food Safety Regulations & Standards	
4.1 Food Standards	20
4.2 Food Safety	21
4.3 Labelling Standards	23

CHAPTER 1

INTRODUCTION

1.1 ORIGIN AND DISTRIBUTION

1.1 ORIGIN, DISTRIBUTION OF CARROT

Both written history and molecular genetic studies indicate that the domestic carrot has a single origin in Central Asia. Its wild ancestors probably originated in Persia (regions of which are now Iran and Afghanistan), which remains the center of diversity for the wild carrot *Daucus carota*. A naturally occurring subspecies of the wild carrot was presumably bred selectively over the centuries to reduce bitterness, increase sweetness and minimize the woody core; this process produced the familiar garden vegetable.

When they were first cultivated, carrots were grown for their aromatic leaves and seeds rather than their roots. Carrot seeds have been found in Switzerland and Southern Germany dating back to 2000–3000 BC. Some close relatives of the carrot are still grown for their leaves and seeds, such as parsley, cilantro, coriander, fennel, anise, dill and cumin. The first mention of the root in classical sources is from the 1st century AD; the Romans ate a root vegetable called *Pastinaca*, which may have been either the carrot or the closely related parsnip.

The plant is depicted and described in the Eastern Roman Juliana Anicia Codex, a 6th-century AD Constantinopolitan copy of the Greek physician Dioscorides 1st-century pharmacopoeia of herbs and medicines, *De Materia Medica*. Three different types of carrots are depicted, and the text states that "the root can be cooked and eaten".

1.2 IMPORTANCE & USES: Carrots have an abundance of health benefits, let us take a look at them below.

1. Reduces Risks of Cancer:

Consuming carrots can reduce your risks of having colon, stomach and prostate cancer. Well, this is because carrots have carotenoid which is an antioxidant that strengthens your immune system and reduces your risks of developing cancer. According to a study by the Centers for

Disease Control and Prevention, carrots need to be added to your everyday diet as this will help your immune system to fight various deadly diseases. Moreover, the study concluded that both orange and carrots can reduce your risks of cardiovascular diseases as well as cancer.

2. Reduces Cholesterol in Blood:

Traditionally speaking, the primary cause of any heart disease is cholesterol in your blood and consuming carrots will keep you safe from getting hitched with cholesterol. The rich source of fiber that is found in carrots is usually soluble fiber which is the primary reason for lowering down cholesterol in your blood. All you need to do is to add carrots to your everyday diet and prevent yourself from the risks of developing cholesterol related problems.

3. Aids in Weight loss:

If you are a diet enthusiast and prefer losing out weight most often, you need to add carrots on your regular diet. This is because carrots are rich in fiber that takes longer to digest and as a result this makes you feel full most often. This will also prevent you from snacking on fatty foods.

4. Helps in Good Vision:

If you are suffering from bad eyesight, then carrots can help improve your state of vision. It has been considered as a full-proof remedy that can save you from bad eyesight. This can also help you see better in the dark. Moreover, the substance that makes carrots aid good eyesight is that it is rich in lycopene and lutein including vitamin A.

5. Ensures Normal Bowel Movements And Digestion:

The high amounts of dietary fiber in carrots aids in good digestion and ensure that you have normal stools. Fiber makes your stool bulky and as a result, this will help you pass healthy and normal stools. Say goodbye to constipation and yes to carrots.

6. Carrots are good for Your Skin:

Just as the skin of the carrot is red and shiny, consuming carrots will give your skin a radiant glowing texture. Not just that your skin will benefit from eating a carrot, but your nails too. This because carrots have high amounts of silicon content in their root that helps maintain healthy nails and skin. In order to get the best nutrients out of carrots, you need to consume them raw.

7. A Good Boost for Your Immunity:

Carrots are a good boost for your immunity as they are rich in antioxidants, vitamin K and B6. All of these factors contribute to a stronger nervous system, better bone health and higher brain power. The antioxidants in the vegetable protect the body from harmful bacteria, inflammation and viruses that can be deadly. Thus, all of these put together constitute a better and stronger immune system that can prevent you from a bastion of diseases.

Nutritional Information of Carrots:

The nutrition facts for two small-to-medium raw carrots (100 grams) are:

- Calories: 41
- Water: 88%
- Protein: 0.9 grams
- Carbs: 9.6 grams
- Sugar: 4.7 grams
- Fiber: 2.8 grams
- Fat: 0.2 grams

Carrots are a good source of several vitamins and minerals, especially biotin, potassium, and vitamins A (from beta carotene), K1 (phylloquinone), and B6.

- **Vitamin A:** Carrots are rich in beta carotene, which your body converts into vitamin A. This nutrient promotes good vision and is important for growth, development, and immune function.
- **Biotin:** A B vitamin formerly known as vitamin H, biotin plays an important role in fat and protein metabolism.
- **Vitamin K1:** Also known as phyloquinone, vitamin K1 is important for blood coagulation and can promote bone health.
- **Potassium:** An essential mineral, potassium is important for blood pressure control.
- **Vitamin B6:** A group of related vitamins, B6 is involved in the conversion of food into energy.

Other plant compounds:

The main plant compounds in carrots are:

- **Beta carotene:** orange carrots are very high in beta carotene. The absorption is better (up to 6.5-fold) if the carrots are cooked.
- **Alpha-carotene:** An antioxidant that, like beta carotene, is partly converted into vitamin A in your body.
- **Lutein:** One of the most common antioxidants in carrots, lutein is predominantly found in yellow and orange carrots and is important for eye health.
- **Lycopene:** A bright red antioxidant found in many red fruits and vegetables, including red and purple carrots, lycopene may decrease your risk of cancer and heart disease.
- **Polyacetylenes:** Recent research has identified bioactive compounds in carrots that may help protect against leukemia and other cancers.
- **Anthocyanins:** These are powerful antioxidants found in dark-colored carrots.

1.3 VALUE ADDED PRODUCTS FROM CARROTS:

Carrots (*Daucus carota L.*) are rather inexpensive and it is highly nutritious as it contains appreciable amount carotene. Total vitamins B1, B2, B6 and B12 besides being rich in carotene. Vitamin – A in carrot ranges between 2055 to 9100 IU/100g. High carotenoid intake is associated with lowering risk of many cancers, especially the prostate cancer. Further, vitamin A is an antioxidant which is key to the growth and repair of tissues and helps the body to fight with infections, keep eyes healthy, nourish epithelial tissues in the lungs, as well as of the skin. Apart from being high in carotenoids, carrots are also high in dietary fiber. Carrots also contain a significant supply of calcium, potassium and phosphorus.

Dehydrated carrot pieces are a dehydrated version of carrot which can be preserved by drying. It can easily be added into the diet or can be consumed as a low-calorie snack, anywhere, anytime. Many commercial brands today add ingredients such as salt, spices and vegetable oils not only to boost its flavour but also to lengthen its shelf life. Carrot's suitability for drying is fair to good. Modern research shows that its nutritional content may benefit the health. Since drying process reduces the effects of some nutrients, like vitamin C, most other nutrients are retained and are concentrated.

Drying or dehydration is one of the most effective means to extend the shelf life of perishable fruits and vegetables. The main purpose of dehydration in preserving fruits and vegetables is to remove moisture so that water activity of the dehydrated products is low enough of a_w less than 0.6 for preventing the spoilage and the growth of pathogenic microorganisms and subsequently to reduce the spoilage reactions. Dehydration is also used in combination with other preservative factors such as initial heating of vegetable in boiling water and salt solution to extend the shelf life of vegetables. Dehydration significantly reduces the cost of transportation and storage due reduced weight and volume of dehydrated vegetables. Unlike fresh vegetables, dehydrated vegetables do not require refrigeration during storage.

Value addition of carrot increases the nutritional profile and helps in proper utilization of crop by reducing wastage. It helps farmers to produce higher shelf-life product with reasonable higher income.

1.4 SCOPE OF CARROT PROCESSING INDUSTRY

Carrots are healthy vegetables but this agricultural product have low value when they are sold as a raw commodity. To become value-added agricultural products, the value of raw carrots have to be increased through the addition of ingredients or processes that make them more attractive to the buyer. Increasing the added value of the carrots requires the development of food products that considering the voice of the customer.

Standardization of technology to bring down cost of production of fresh carrots and its adoption by growers, assured market for the produce and to produce carrot throughout the year may go a long way in promoting carrot industry in India. Though carrot is an excellent nutrient rich material to be preserved in different forms; bulk of the carrot produced in the country is consumed in fresh form as salads.

The processing industry for carrot is not very well developed in India. Major constraints in processing are as follows:

1. High cost of value addition and less out put with more by products from the processing.
2. Non-availability of fruits throughout the year.

CHAPTER 2

PREPARATION OF DEHYDRATED CARROT PIECES

2.1 CARROT PROCESSING

Carrot is one of the popular and is liked by majority of the people irrespective of their age group. As is the case with most of the fruits and vegetables, their availability is limited during off-seasons. Many techniques have been developed to make available seasonal vegetables even during off-season. This is highly perishable and seasonal. Hence processing is necessary. Processed carrot is popular and is exported by many countries. During processing, nutritional quality of carrot can be affected but there are recent researches carried out which use new technologies to retain the nutritional quality of the carrot as it. This is to meet the consumer demand for healthy, nutritious and natural products. Some of the food industries based on carrots are described below.

2.1.1 Processing

Carrots are highly perishable items which needs processing to make it durable. Fruit processing is any deliberate change in a fruit that occurs before it's available for us to eat. Processing methods extend the shelf life of fruits.

Processing has three major aims:

1. To make food safe (microbiologically & chemically).
2. To provide good quality products with good flavor, color, texture and taste with less nutrient loss.
3. To make convenient products

Carrots should be prepared for preservation as soon as possible after harvesting within 4 to 48 hours. As time passes spoilage increases rapidly. Processing involves many steps.

To meet consumers' demand for fresh and convenient products, a new category of fresh carrots, called minimally processed (MP) products, has been created.

The minimal processing involves washing, abrasion, peeling, slicing, chopping, and shredding, with the aim to present convenient, fresh-like, and ready to-eat products to consumers. However, these handlings result in physiological stresses or mechanical damages that deteriorate the products far more quickly than the whole roots. Susceptible to high respiration rate and microbial spoilage, MP carrots become slimy, lose firmness, discolor, and develop off-odors during storage.

Washing the roots before peeling or cutting can help reduce cross-contamination between the cortex and inner parts of carrot. The combination of warm water and chlorine washing was found to be most effective in reducing aerobic mesophilic bacteria during storage.

To extend the shelf life of MP products, many studies have focused on physiological, quality, and nutritional implications or packaging conditions

Cleaning and washing: First, the carrots should be cleaned thoroughly to remove any adhering dirt or pesticide residues. This cleaning process usually involves washing the product with running water.

Sorting & Peeling: To achieve a uniformly sized product, vegetables are sorted immediately after cleaning according to their size, shape, weight or color. Sorting by size is especially important if the products are to be dried or heated, because their size will determine how much time will be needed for these processes. Sorted Carrots are peeled to remove the outer skins.

Cutting: Cutting is important in order to get uniform pieces for heating, drying and packing. Fruits are usually cut into cubes, thin slices, rings or shreds. The cutting utensils have to be sharp and clean to prevent micro-organisms from entering the food.

Blanching: Blanching is a slight heat treatment, using hot water or steam that is applied mostly to fruits before canning or freezing. It is done by immersing products in water at a temperature of 50-55°C. The result is that fruits become soft and the enzymes are inactivated. Blanching is done before a product is dried in order to prevent unwanted color and odour changes and an excessive loss of vitamins.

Drying: Carrot Pieces are then subjected to tray drying by proper arrangement in trays. They are dried till desired finished product quality is obtained.

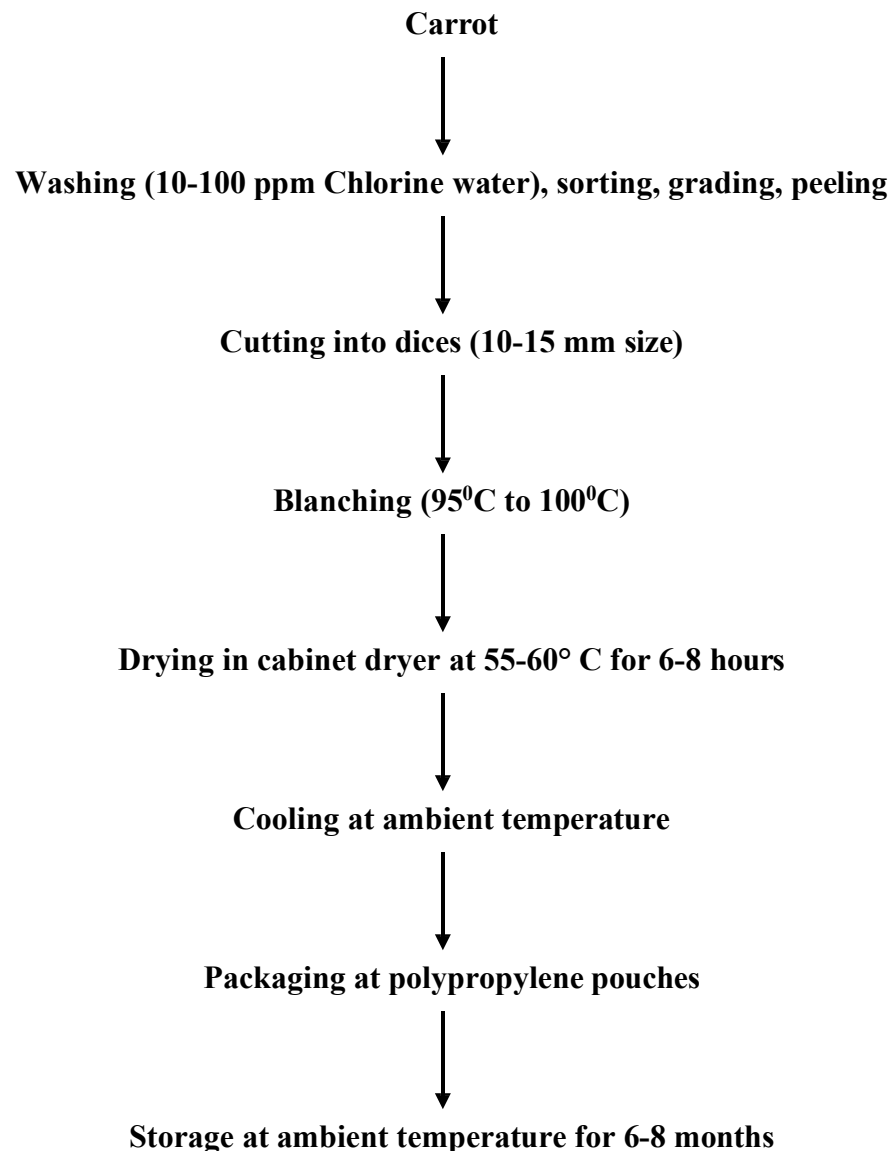
Packaging, Sealing and Storage: The cooled dehydrated carrot pieces are then packed into paper bags, poly pouches or jars as per required pack sizes. Packaging material selection is also of a great importance to preserve the product quality by avoiding the moisture ingress. Packed Products are stored hygienically till dispatch.

2.2 DEHYDRATED CARROT PIECES:

Dehydrated pieces contain approximate 6 % of moisture.

Rest will be the vegetable.

2.2.1 Flow chart for Dehydrated Carrot Pieces



Pre-processing of Carrot:

Pre-drying processing means to prepare the raw product for drying or dehydration and include raw product preparation and colour preservation. Carrot preparation includes selection and sorting, washing, peeling and cutting into the appropriate form, and blanching. Carrot is selected; sorted according to size, maturity, and soundness; and then washed to remove dust, dirt, insect matter, mold spores, plant parts, and other material that might contaminate or affect the colour, aroma, or flavour. Next, the product is cut into the appropriate shape or form (i.e., halves, slices, cubes, etc.). Carrot is blanched by immersion in hot water (95°C to 100°C) or exposure to steam. Then they are treated with sulfite solutions to retard enzymatic browning. Sulfites and Sulphur dioxide. Sulphur dioxide gas and sodium or potassium sulfite, bisulfite or metabisulphite are the most common forms used. Commonly used levels: 0.005-0.2% In addition to colour preservation, the presence of a small amount of sulfite in blanched, cut carrot improves storage stability and makes it possible to increase the drying temperature during dehydration, thus decreasing drying time and increasing the drier capacity without exceeding the tolerance for heat damage.

Post-dehydration treatments:

These treatments may include sweating, screening, inspection, instantiation treatments, and packaging. Sweating involves holding the dehydrated product in bins or boxes to equalize the moisture content. Screening removes dehydrated pieces of unwanted size, usually called "fines". The dried product is inspected to remove foreign materials, dis-coloured pieces, or other imperfections such as skin, carpel, or stem particles. Instantiation treatments are used to improve the rehydration rate of the low-moisture product. Packaging is common to all most all dehydrated products and has a great deal of influence on the shelf life of the dried product. Packaging of dehydrated vegetables must protect the product against moisture, light, air, dust, micro flora, foreign odour, insects, and rodents; provide strength and stability to maintain original product size, shape, and appearance throughout storage, handling, and marketing; and consist of materials that are approved for contact with food. Cost is also an important factor in

packaging. Package types include cans, plastic bags, drums, bins, and cartons, and depend on the end-use of the product.

2.2.3 Equipment involved



Washer: Carrots are first washed with warm water to remove adhered particles, dirt and debris



Sorter: Carrots are then sorted according to their sizes and shapes. They are also graded for their quality with visual inspection.



Washed and sorted carrots are peeled.



Peeled Carrots are diced as per sizes required



Diced Carrots are blanched into blanching machine.



Diced blanched carrots are then dried into cabinet drier as per final product quality requirements.



Continuous Sealer: Dehydrated carrot pieces are cooled and packed into required pack sizes and sealed.



Tray Sealer: Used to seal pack the dehydrated carrot pieces into trays

Approximate Project costs for the project

Particulars	Amount in Lakhs
i. Land and building (20 x 32 x 12 ft - LxBxH)	5.3
ii. Plant and machinery	24.73
iii. Utilities & Fittings	0.8
iv. Other Fixed assets	0.9
v. pre-operative expenses	0.90
vi. Contingencies	1.20
vii. Working capital margin	4.83
Total project cost (i to vii)	38.66
Means Of finance	
i. Subsidy	9.67
ii. Promoters Contribution	10.05
iii. Term Loan (@10%)	18.94

CHAPTER 3

PACKAGING OF CARROT DEHYDRATED PIECES

3.1 THE FACTORS THAT LEAD TO SPOILAGE OF PRODUCT:

The following are the factors which are affecting the quality of the finished product.

- Unhygienic condition of the processing area, Utensils and Staff
- Raw product Quality
- Post processing handling of the products.
- Packaging material quality & Storage condition

3.2 PACKAGING MATERIAL USED FOR CARROT PIECES

Factors to consider include product damage, fines, stickiness, bag opening size, re-closure among other things.

Packaging: - The Enclosure of products, items or packages in a wrapped pouch, bag, box, cup, tray, bottle or other container to perform the following function: Containment; Protection; and/or preservation; communication and Utility of performance.

The packaging requirements....

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

Packaging materials Carrot Dehydrated Pieces

Glass: Chemically inert & Will not affect the quality, odor or taste of the product. It is strong, rigid & 100 % recyclable.

PET (Polyethylene terephthalate): lightweight, flexible & recyclable, it can be used based on requirements.

Standby pouches: Carrot dehydrated pieces can be packed into standby pouches. They are more convenient to use and with more appeal with respect to handling.

A variety of others packaging materials are available, the ultimate choice of the packing depends upon the required shelf-life, performance on the filling machine and the cost which is purely based on the segment of the market targeted by the manufacturer. The most common choice of packaging medium is PET (Polyethylene Terephthalate) as it provides the required protection and preservation, grease resistance, physical strength, machinability and printability. Plastics being lighter in weight are, therefore, the most preferred material for packaging of dehydrated pieces.

To control the growth of spoilage and pathogenic microorganisms during the storage of Dehydrated carrot pieces, antimicrobial packaging is considered as one of the most promising methods. Chitosan-based edible films have been proven as an effective packaging material to extend carrot shelf life. The most significant antimicrobial effect is achieved by using chitosan and combined sodium casein/chitosan solutions (del Rosario Moreira et al. 2011).

In another work, coating films consisting of 1.5% chitosan, 4% yam starch, and 2% glycerol efficiently inhibit the growth of lactic acid bacteria and total coliform present in dehydrated carrots pieces stored at 10°C for 15 days (Durango et al. 2006).

Color, taste, and the vacuum of the processed carrot packages during 14 days of storage at 6°C can also be maintained by heating carrot sticks at 60°C in less than 2 min in a parallel plate radio frequency applicator combined with chlorine water (100 ppm) (Orsat et al. 2001).

Packaging is also used based on their types:

- Primary Packaging
 - a. Envelops and holds the product.
 - b. Direct contact with the product

- Secondary Packaging
 - a. Used to group the primary packages.
 - b. Present outside the primary unit.
- Tertiary Packaging
 - a. Used for handling of bulk during storage and transport.
 - b. Carton palletized unit of secondary package.

3.3 FUTURE TRENDS

The Minimally Processed food market is one of the most competitive in the FMCG area. Major companies continuously battle to entice consumers from competing brands a strong brand.

The developing trends in packaging are:

- Widespread and increasing use of cold seal
- Use of laminated structures and cold seals for premium products
- Increasing use of opaque multi-packs for grocery outlets
- Switch over to higher yield opaque films for cost reduction
- Replacement of Al foil / paper wraps by OPP laminates
- Developments in low temperature heat seal packs
- Anti-microbial and edible Chitosan based packaging

CHAPTER 4

FOOD SAFETY REGULATIONS AND STANDARDS OF CARROT DEHYDRATED PIECES

4.1 FOOD STANDARDS

FSSAI category: - it has been covered in category 4.2.1.3

Thermally Processed Vegetables (Canned, Bottled/Flexible pack / Aseptically Packed) means the product obtained from fresh, dehydrated or frozen vegetables either singly or in combination with other vegetables, peeled or un-peeled, with or without the addition of water, common salt and nutritive sweeteners, spices and condiments or any other ingredients suitable to the product, packed with any suitable packing medium appropriate to the product processed by heat, in an appropriate manner, before or after being sealed in a container so as to prevent spoilage.

The packing medium along with its strength shall be declared on the label. The product may be prepared in any suitable style appropriate to the product.

The product may contain food additives permitted in these Regulations and Appendices. The product shall conform to the microbiological requirements given in Appendix B.

The name of the vegetables used in the product and prepared in any style shall be declared on the label along with the range of percentage of each vegetable used in the product.

Drained weight of vegetables shall be not less than the weight given below:

(i) Liquid Pack (a)	Mushroom	50.0 percent of net weight of contents
(b)	Green beans, <u>carrots</u> , peas, sweet corn/ baby corn	50.0 percent of net weight of contents
(c)	Mushroom Packed in sauce	25.0 percent of net weight of contents
(d)	Other Vegetables	50.0 percent of net weight of contents

Additives allowed as per FSSAI for Minimally processed dehydrated products

Code	Food Category	Additive	Additive Number	Permittable Limits
4.2.1.3	[Peeled, cut or shredded minimally processed vegetables [(including mushrooms and fungi, roots and tubers, fresh pulses and legumes, and aloe vera) sea weeds, nuts and seeds)]	Lauric alginate ethyl ester	243	200 mg/kg
		PHOSPHATES		5600 mg/kg
		Sodium ascorbate	301	GMP
		SULFITES		50 mg/kg
		Calcium chloride	509	350 mg/kg
		Calcium lactate	327	
		Calcium gluconate	578	
		Calcium carbonate	170(i)	
		Citric acid	330	GMP
		Ascorbic acid	300	GMP
		Calcium ascorbate	302	GMP
		Potassium carbonate	501	GMP

4.2 FOOD SAFETY

Part I - General Hygienic and Sanitary practices to be followed by Petty Food Business Operators applying for Registration

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 STANDARDS

Labeling 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, Colors and Flavors
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 coloring 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 color-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 color-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 labeling 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 Labeling Regulation 2011, “prepackaged” or “pre packed food” including multi-piece packages, should carry mandatory information on the label.



Contact Us

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