Ministry of Food Processing Industries
Government of India

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Reading Manual for Asafoetida Powder

Under PMFME Scheme

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ABBREVIATIONS & ACRONYMS

Sr: No.	Abbreviations &Acronyms	Full Forms
1.	APEDA	Agricultural and Processed Food Products Export Development Authority
2.	FAO	Food and Agriculture Organization
3.	FBO	Food Business Operator
4.	FLRS	Food Licensing and Registration System
5.	FPOs	Farmer Producer Organizations
6.	FSSAI	Food Safety and Standards Authority of India
7.	kcal	kilocalorie
8.	MoFPI	Ministry of Food Processing Industries
9.	PA	Polyamide
10.	PET	Polyesters
11.	PFA	Prevention of Food Adulteration
12.	SHGs	Self Help Groups
13.	UAE	United Arab Emirates
14.	UK	United Kingdom
15.	US	United States
16.	WVTR	Water Vapour Transmission Rate

CHAPTER 1
INTRODUCTION

1.1. Industrial Overview:

Indian Spices

India is the largest producer of spices in the world.India produces a variety of spices. Spices are cultivated indifferent climates in various parts of the world. Others were imported from similar climates and have been locally grown for centuries since then. Are fined grain has had the bran and germ removed, leaving just the endosperm. Some examples of Indian spices include pepper, turmeric, cardamom, and Asafoetida. In various ways, spices are used: whole, chopped, ground, roasted, sautéed, fried, and as a topping. To extract the nutrients, they mix food and attach the mint to a palatable form. Some spices are added as flavouring at the end, which are usually heated before being added to a dish in a pan with ghee or cooking oil. Lastly, lighter spices are added, and spices with a heavy flavour should first be added. Flavours come with seasoning, and daily foods become luscious in taste.

Each spice has a distinct texture, unique aroma and enhancing characteristics that bring out the best of the ingredients and make delicious food. India, regarded as the birth place of spices, boasts a long tradition of trade with Rome and China's ancient civilizations. Today, given their exquisite fragrance, texture, taste and medicinal value, Indian spices are the most sought- after globally. In the world, India has the largest domestic spice market.

Traditionally, spices in India have been grown in small land holdings, with organic farming gaining prominence in recent times. Both the fresh herb and spice seeds, which are used mainly for culinary purposes, are provided by the Asafoetida plant. Spices (seeds) are widely used as condiments with or without roasting in the preparation of curry powders, sausages, and seasonings. It is an important ingredient in baked products, meat products, soda & syrup, puddings, cookies, preserves, and liquors in the manufacture of food flavouring. It also uses

the preparation of either steam-distilled essential oil or oleoresin derived from solvents. Both products are used in the flavouring and scent industries.

1.2. Product Description:

Asafoetida, also spelled asafetida, is named after the Persian aza, for mastic or resin, and for stinking, the Latin foetidus. It is a gum which comes from the sap of the ferula species' roots and stem, a giant fennel that exudes a vile odor. Asafetida is a gum that is hard-resinous, grayish-white when fresh, darkening to yellow, red and ultimately brown with age. It is sold as a gum, and more often as a fine yellow powder, often crystalline or granulated, in blocks or pieces. It is sold in the form of blocks of resin in its pure form. The odor of the pure resin is so intense that other spices and substances processed nearby can absorb the pungent scent. Therefore, it is important to store Asafetida in an airtight jar. The mixture is sold in sealed plastic containers with a hole which enables the powder to be dusted directly. It is a standard component of lentil curries used along with turmeric, such as dal, curries, and vegetable dishes, especially those based on potato and cauliflower. In vegetarian Punjabi and South Indian cuisine, asafoetida is used where it improves the flavor of various dishes, where it is easily heated before sprinkling on the food in hot oil. At the time of tempering, the spice is applied to the food.

Early records state that this "stink finger" was brought by Alexander the Great to use as a seasoning. It was used in ancient Rome as a spice and, while not native to India, it has been used for ages in Indian medicine and cooking. It was assumed that Asafoetida strengthened the voices of the singers. In the days of the Mughal aristocracy, on the banks of the Yamuna river, the court singers of Agra and Delhi will eat a spoonful of asafoetida with butter and practice. Asafoetida, due to the presence of sulphur compounds in it, has a heavy odor and a bitter, acrid taste. It contains between 40-60% resin, 25% gum, 10% volatile essential oil and other ash-like compounds. The resin consists primarily of asaresinotennol, free of ferulic acid or mixed with it. Tapping is usually done in March and April, just before the plants flower.

This spice is used as a digestive aid, as a condiment in fruit, and as a pickle. By serving as a savory enhancer, it plays a vital flavoring role in Indian vegetarian cuisine. Asafoetida, often dried and ground (in small amounts), can be combined with salt and eaten with raw salad. Asafoetida has long been used as a medicinal herb and a food flavouring. It is also often used in modern herbalists where hysteria, certain nervous disorders, bronchitis, asthma and whooping cough are highly valued in the treatment. Antispasmodic, carminative, expectorant, laxative, sedative gum resin. In the lungs, the volatile oil in the gum is removed, making this an effective asthma treatment. As a flavoring agent, it is used and forms a part in several spice mixtures. Asafoetida is helpful in treating respiratory conditions such as whooping cough, bronchitis, and asthma. It is regarded as a medication that expels wind from the stomach and counteracts any spasmodic conditions. It is also a stimulant for the nervous system, a digestive agent and a sedative.

1.3. Market Potential:

In India's humongous spice market, Hing commands 6-8 percent wallet share and its presence in Indian curries is not as tangible as maybe dry red chili or mustard. In the 1920s, demand for processed hinges first shot up in most southern markets, especially around Tanjore in Tamil Nadu. This was when LG & Co set up its first offsite plant at Nagapattanam, then led by Khimji Laljee (Laljee Godhoo's son). In the late 1970s and early 1980s, when the company set up more manufacturing units in Chennai, Kumbakonam and Nashik, in addition to a mother plant in Mumbai, the demand period peaked once again. When the Chennai unit began, the Nagapattanam unit was closed.

For the last 100 years in India, Hathras has been a large scale producer of Asafoetida or hing. This has brought a different identity to the district. Raw Asafoetida is mostly imported from countries such as Afghanistan, Tajikistan and, among others, Uzbekistan. Asafoetida is an essential ingredient that has been used as a product for years. In the domestic and export industry, there is a strong demand for quality compounded asafoetida. There is no specific domestic demand estimate available for compounded asaphoetide. Asafoetida was exported by India to the UK, Yemen, Belgium, Kenya, Malaysia, Oman, Switzerland, the UAE and other countries. On the domestic market, the price of good quality asafoetida ranges between Rs.100 and 500/- per kg. Approximately 3500 tonnes of asafoetida is expected to be processed and sold.

1.4. Raw Material Description:

Asfoetida

Asafoetida lumps

An overview of asafoetida indicates that it consists of 67.8 percent carbohydrates per 100 gm, 16.0 percent moisture, 4.0 percent protein, 1.1 percent fat, 7.0 percent minerals and 4.1 percent fibre. Apart from phosphorus, iron, carotene, riboflavin and niacin, its mineral and vitamin content contains significant calcium. The gum resin is extracted from incisions in the plants' roots and rhizomes. Sour to five-year-old plants usually grow very dense and fleshy, carrot-shaped roots. It lays bare the upper part of the root and the stem is cut near to the crown. A dome shaped structure made of twigs and earth covers the exposed surface. From the cut surface that soon coagulates when exposed to sunlight, a milky juice exudes. The exudate gum-resin is scraped off after several days and a fresh slice of the root is cut. Upon drying, the milk juice obtained from the root becomes a brown, resin-like mass. Asafoetida, either as lumps or in powdered form, is processed and marketed. The most popular type of pure asafoetida is lump asafoetida. The trading medium is either pure resin or "compounded asafoetida," a fine powder composed of more than 50% rice flour and gum Arabic to avoid lumping. The benefit of the combined sorin is that the dosage is simpler. In order to extract the essential oil known as Asafoetida Oil, the gum-resin is often steam-distilled.

Today, the most commonly available form is compounded asafoetida, a fine powder containing 50% asafoetida resin, along with rice flour or maida (white wheat flour).

Rice Flour

Ground hing is generally cut with rice flour, and is less potent. Due to this offensive smell, the jar of asafetida should be covered tightly or otherwise its aroma can impure the nearby stored spices.

1.5. Types of Raw Material:

Species are distributed to Central Asia from the Mediterranean region. In Kashmir and in some parts of Punjab, it is grown in India. Afghanistan and Iran are the main suppliers of Asafoetida to India. Two major varieties of asafoetida are found, i.e. Hing Kabuli Sufaid and

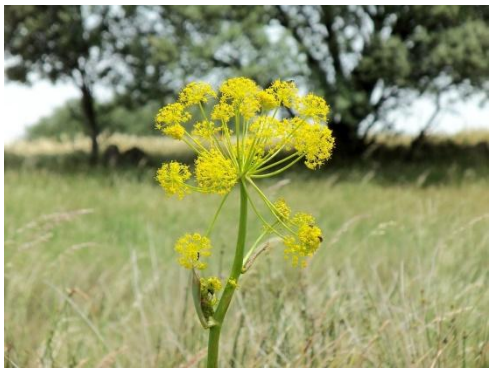
Hing Lalal Sufaid (Milky White Asafoetida) (Red asafoetida). Asafoetida is acrid and bitter in taste and, due to the presence of sulphur compounds in it, emits a heavy, unpleasant pungent odour. The white or pale variety is water soluble, while the oil soluble variety is dark or black. Since, due to its strong flavour, pure asafoetida is not preferred, it is mixed with starch and gum and sold often in brick form as a compounded asafoetida. It is also available in free flowing (powder form) or in tablet forms.

Variety	Description	Image
Hing Kabuli Sufaid (Milky White asafoetida)	The white or pale variety is water soluble.	
Hing Lal (Rd asafoetida)	The Red variety of Hing is oil soluble.	

CHAPTER 2
PROCESS & MACHINERY REQUIREMENT

2.1. Raw Material Aspects:

Asafoetida is dried latex of the rhizome or tapped root of many Ferula species (*F. foetida* and *F. assafoetida*). The plants are perennial herbs and grow up to 1 to 1.5 m (3.3 to 5.9 ft) in height. They belong to Umbelliferae family. The species is native to Iranian deserts and Afghanistan's mountains, where substantial quantities are cultivated. In Iran and Afghanistan, the common modern name of the plant is (in Persian) the black one, which means "gas or wind" because of its use to relieve gas from the stomach. Asafoetida smells sparing, giving it the trivial name "sparkling rubber." When it is cooked, the smell disappears and in the cooked dishes it provides a smooth taste that remembers leeks or other related onions. Also known in colloquial language is Asafoetida as "devil's dung" or the "devil's food." Asafoetida typical contains approximately 40% to 60% resin, 25% gum, 10% to 17% volatile oils, and 1.5% to 10% ash. Aresinotannols A, B, ferulic acid, umbelliferone, and four non-identified compounds found in the resin. Various organo-sulfide compounds, including 2-butyl-propenyl-disulfide, diallyl sulphide, diallyl disulfide, and dimethyl trisulphide, which are equally responsible for the odors of onions, form a rich component of the volatile oil. The main responsibility for the smell and taste of asafoetida is organo-sulfides.[ii]



2.2. Source of Raw Material:

Asafoetida is one of the major spices in Indian cuisine, and since time immemorial has been an important feature in our society. The very pungent and strong spice brings to our diet lots of taste and fragrance. India imports about 1,200 tonnes and spent around US$100 million every year, from Iran, Afghanistan, and Uzbekistan. In an underlying stone, the sapphire is gathered from the slit in the plant bark. The process is similar to rubber tapping. A plant contains about 500 gm of sap in a single ferula. Today, asafoetida, a fine powder containing 30 percent Asafoetida resin, rice flour or Maida (white wheat flour), and rubber Arabs, are the frequently added material in processed hing. As India import raw heeng, the raw Hing can be procured from the hing vendor on from the various online platforms.

2.3. Technologies:

Asafoetida is processed and marketed either as lumps or in powdered form. The lump asafoetida is the most common form of pure asafoetida

Lumped asafoetida

It is a resin-like gum that is extracted from dried sap of the stem and roots of the Ferula plant The asafoetida resin is difficult to grate and is traditionally crushed between stones or with a hammer and then crushed in a traditional method, between heavy stones or by a hammer. it is the purest form of Hing.

Compound asafoetida

It is a fine powder prepared from Resin of ferula plant with added Arabic gum and 50% of rice flour or Maida, Arabic gum used to prevent lumping. The advantage of the compound aspirin is that it is easier to dose or Direct consumption.

2.4. Manufacturing Process:

Compounded Asafoetida Manufacturing Process given below:

Grinding

All the raw material are grinded separately by using industrial Grinder, Mix the ingredients in the required proportion using a Grinder machine and mixer Machine.

Blending

This process is where the grounded powder of the raw materials are blended into a homogenous mix.

Packaging

Now the Compounded Asafoetida or Hing powder is packed with the help of a Packaging machine, appropriate packaging material (e.g. polythene bags) is used for packaging purposes.

2.5. Flow Chart:

Steps	Machine Name	Description	Machine Image.
Weighing	Weighing scale	This scale is used for weigh the raw materials for the further processing.	
Mixing	Mixer Grinder	Used to mix the ingredients for hing production	
Blending	Ribbon Blender	By using the milling machine compounded asafoetida is made into powder form.	
Filling and Packaging	Filling and Packaging machine	This machine is used for filling and packaging of compound hing powder.	

2.6. Additional Machine & Equipment:

Machine and Equipments	Used	Machine Image
Drum Sieve	A quality drum sieve machine is used for removing large impurities from coriander seeds at high capacities. Careful preliminary cleaning reduces the wear and tear on the downstream equipment in the production process.	
Online Inkjet Printing Machine	Use ink to print text, graphics, and images onto various types of paper or pouches.	
Conveyor	These are conveyors with food grade belt to maintain food safety standards set by monitoring authorities.	

2.7. General Failures & Remedies:

S. No.	General Failures	Remedies
1.	Ball bearing failure of various machine	1. Proper periodic lubrication of all bearings in various machines. 2. Regular replacement of all bearing to prevent critical failures.
2.	Power Drive Overload	1. Ensure proper weighing & metering specially in case of semi-automatic plant. 2. Install warning sensor in buffer region of loading capacity to ensure efficient operation.
3.	Mechanical Key Failure	1. Ensure that mechanical keys are replaced as per there pre-defined operational life. 2. Prevent Overloading.
4.	Loss of Interface	1. This problem is dominant in newly

		established automatic plant, one must learn to maintain rules in plant & ensure no employee goes near transmission lines, unless authorised. 2. Provide proper physical shielding for the connections.
5.	Improper Sieving (Optical Sorters)	1. This problem fundamentally occurs due problem with optical sensors. 2. The solution involves cleaning the optical surface & if problem persists replacing the sensor.

2.8. Nutritional Information of Product:

Asafoetida has a strong odor and a bitter acrid odor, as it contains sulphur compounds. The Asafoetida study reveals that per 100 gms of carbohydrates it consists of 67.8% per 100 gms, moisture of 16.0%, protein of 4.0%, fat of 1.1%, minerals of 7.0%, and fiber of 4.1%. It contains minerals and vitamins, but also phosphorus, iron, carotene, ribophlavin and niacin, which are significant in content. Its calorific value of 297, comprises approximately 25 percent gum composed of glucose, galactose, l-arabinotic, rhamnose and glucuronic acid and volatile oil, consisting of 3-17 percent of disulfides, especially 2-butyl propenyl isomers, w, and w, contains 40% or 64% Resin composed of Ferolic acid and umbelliferolic acid, and Farnesiferole A,B,C, etc. It contains minerals and vitamins, but also phosphorus, iron, carotene, ribophlavin and niacin, which are significant in content.[iii]

2.9. Export Potential & Sales Aspect:

India's overall usage of asafoetida has been estimated to be 40 percent of the global supply. Industry players have reported that even during COVID's national lockdown, demand for asafetida has remained steady. But no attempt to manufacture asafoetida in the country until recently has been made. In Himachal Pradesh, India, however, some praiseworthy steps are being taken. The Science and Industrial Research Council (CSIR) - Himalyan Bioresource Tech (IHBT) scientific researchers in Lahaul and Spiti declared planting in October 2020 of 800 Feral asafoetida saplings. The seed was imported from Iran in 2018 for processing. In 2018. A fifth-year after plantation is projected to support this initiative. Afghanistan was the

top asafoetida exporter to India with 98.19 percent of the overall Indian commodity imports in 2019-20. On the other hand, in 2019-20 India's exports to the world of this commodity amounted to US$8.63 million. Indian asafoetida importers usually buy it raw, then add value by transforming it into a compounded shape and then exporting it to the rest of the world. Exports of asafetida have risen by 5.13% in the last five years, and the United States, Saudi Arabia, Singapore, and Malaysia are all included in India.[iv]

CHAPTER 3
PACKAGING

3.1. Shelf Life of Product:

Asafoetida can be kept indefinitely in lump form. To keep the unpleasant odour away from you and other food, store it in an airtight jar. Some people also placed it in a plastic bag to absorb the scent, then in a container, then in the freezer. Some people claim that they put it in a neighbour's freezer. It is possible to store the soil for up to 1 year.

The spices do not spoil, but they lose their strength with time. Spices maintain their potency longer than you would expect if properly stored. Whole pepper corns, nutmegs, garlic, sticks of cinnamon, and whole seeds, including cilantro, Asafoetida, and cardamom, all last longer than their ground counter parts.

- **Proper Storage**

There are two critical keys to maintaining the optimum flavour and getting the greatest value out of your herbs and spices. Store your spices and seasoning blends in air tight containers and keep them in a cool dark place. Keeping containers tightly closed will protect them from moisture and oxidation. Keeping them away from direct light will keep their color from fading. We've also found that when spices are stored in glass jars they tend to retain more of their essential oil content.

- **Appropriate Storage**

To preserve the optimal taste and get the best benefit of herbs and spices, there are two essential keys. Store spices in air tight containers and keep them in a cool dark place. They would be safe from moisture and decay by holding containers that will protect them from oxidation and spoilage. It'll protect their color from fading by keeping them hidden from the over sun. It is observed that spices appear to maintain essential oil content when spices are kept in glass jars. Never store spices in a warm or humid place, as the extra heat can contribute to their quality deterioration more easily. Higher humidity will also shorten their shelf life as well. In temperatures below 70° and in conditions with lower humidity, stored spices perform well as shelf-life. The whole seeds keep the longest because they have not

been cracked or ground which would expose their volatile oils to the air which speeds up the breakdown of their flavour. This is why ground powder has a shorter shelf life than whole spices or seeds. If the Asafoetida is kept in proper storage the shelf life of Seeds is 2-3 years and Ground powder and herb leaves can keep 1 year.

3.2. Hing Powder Packaging:

The packaging material to be used must be carefully chosen, taking into account both practical and marketing specifications, in order to ensure the consistency of the spices during handling, transport, storage, and delivery. In general, the packaging specifications for spices are listed below:

- To protect the product from spillage and spoilage.
- To provide protection against atmospheric factors such as light, heat, humidity, and oxygen.
- The selected packaging materials should have high water vapour and oxygen barriers.
- The packaging material should have a high barrier property to prevent aroma/flavour losses and in gross of external odour.
- The volatile oil contained in the spice substance has a tendency to react with the packaging material's inner/contact layer, often leading to a greasy and sticky packet with the printed matter being smudged.
- Therefore, the wrapping material should be resistant to grease and oil and be compliant with the commodity.
- The packaging content should, in addition to the above practical specifications, have good machinability, printability and be readily available and disposable.

3.3. Type of Packaging:

- **Re-closable Zipper Bags and Pouches-** Re-closable bags and pouches are good for flavored hing because they give customers convenient access to their goodies while preserving freshness.
- **Flexible Pouches-** Flexible pouches are a great option for holding any processed products. They can be manufactured with zipper-seal closures, which help keep the interior contents fresh for use. Flexible pouches offer amazing printing capabilities, so

you can add your attractive product branding to the pouch itself. Many pouches stand up on their own, which helps you improve your shelf appearance.

- **Small Plastic bottles with caps-** They are largely used for hing packaging as its airtight lid helps in containing its properties containing its taste and smell.
- **Paper board Containers with aluminum sheet coating-** A very high quantum of polymeric materials, besides cellulosic and aluminium foil, are used for packaging items. Paper board containers are also used for certain applications.

Consumer Packages: The possibilities open to spice traders/exporters when selecting a consumer pack for the domestic and export market are very large. The choice of the packaging material, however, depends on a number of factors, which are listed broadly below:

- ✓ Shelf-life duration, i.e. the degree of protection required by the commodity against pick-up of moisture, preservation of aroma retention, decolouration, etc (this is more critical in the case of powdered spices)
- ✓ During packaging, transportation, and delivery, environmental conditions
- ✓ Business type/sector
- ✓ Preferences for users
- ✓ Printability and appeal of aesthetics

The package types generally used as consumer packs are:

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

3.4. Material of Packaging:

The most common choice of packaging medium is plastic (generally flexible) 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 sweets. There are many changing trends in the packaging. Plastic films and their laminates are increasingly used due to better properties and aluminium foil laminates due to price and better flex crack property. Plastic-based packaging materials that can be used for hing are listed below.

- **Polyethylene (PE)-** It is considered to be the backbone of packaging films. Since one of the greatest threats to the quality of product comes from moisture, polyethylene with its low water vapor transmission is of definite interest. Polyethylene films are fairly free of plasticizers and other additives and are quite extensively used as a part of lamination. Its ability to heat seal increases its value. Low-Density Polyethylene (LDPE) is an economical material with low WVTR, however, it has high permeability's to flavors/volatiles, poor grease resistance, and are limp. High-density polyethylene (HDPE) is stiffer, more translucent, and has better barrier properties but needs a higher temperature for sealing.

  Later additions include high molecular weight high-density polyethylene (HM HDPE) and linear low-density polyethylene (LLDPE). HM HDPE is a paper-like film with high physical strength and barrier properties but is less transparent than ordinary polyethylene. HM HDPE is available in twist-wrap grades. Polyethylene films are also suitable for making bags. A copolymer of polyethylene and polyvinyl alcohol and EVOH has outstanding gas barrier properties especially when dry.

- **Polypropylene-** Polypropylene films have better clarity than polyethylene and enjoy superior machinability due to stiffness. Lack of good salability has been a problem; however, PVDC and vinyl coating have been used to overcome this problem. Some varieties of PP have been specially developed for twist-wrap applications as they have the ability to lock in position after twisting.

- **Poly Vinyl Chloride (PVC)-** PVC is a stiff and clear film having a low gas transmission rate. PVC can be used as small wraps, bags, and pouches. PVC when co-polymerized with polyvinylidene chloride is known as Saran. Since it is a costly material, it is only used as a coating to obtain barrier properties and heat salability. PVC film is also used for twist wraps, as it has twist retention properties and is excellent on high-speed machines.

- **Polyesters (PET) and Polyamide (PA)-** Polyethylene terephthalate film has high tensile strength, gloss, and stiffness as well as puncture resistance. It has moderate WVTR but is a good barrier to volatiles and gases. To provide heat seal property, PET is normally laminated to other substrates. Nylons or polyamides are similar to PET but have high WVTR.

- **Metallised Films-** When polymeric films are metalized there is an improvement in their barrier properties. Metallization is also used for decorative purposes and aesthetics. The films, which are used for metallization, are PVC, PET, PP, and polyamides.

CHAPTER-4
FOOD SAFETY REGULATIONS AND STANDARDS OF ASAFOETIDA POWDER

4.1. Introduction to FSSAI:

The Food Safety and Standards Authority of India (FSSAI) has been established under Food Safety and Standards, 2006 which consolidates various acts & orders that have hitherto handled food-related issues in various Departments. The FSSAI is responsible for setting standards for food so that there is one body to deal with and no confusion in the minds of consumers, traders, manufacturers, and investors. The Act aims to establish a single reference point for all matters relating to food safety and standards, by moving from multi-level, multi-departmental control to a single line of command.

Highlights of the Food Safety and Standard Act, 2006-

Various central Acts like Prevention of Food Adulteration Act, 1954 , Fruit Products Order , 1955, Meat Food Products Order , 1973, Vegetable Oil Products (Control) Order, 1947,Edible Oils Packaging (Regulation)Order 1988, Solvent Extracted Oil, De- Oiled Meal and Edible Flour (Control) Order, 1967, Milk and Milk Products Order, 1992 etc will be repealed after commencement of FSS Act, 2006.

The Act also aims to establish a single reference point for all matters relating to food safety and standards, by moving from multi- level, multi- departmental control to a single line of command. To this effect, the Act establishes an independent statutory Authority – the Food Safety and Standards Authority of India with head office at Delhi. Food Safety and Standards Authority of India (FSSAI) and the State Food Safety Authorities shall enforce various provisions of the Act.

Establishment of the Authority-

Ministry of Health & Family Welfare, Government of India is the Administrative Ministry for the implementation of FSSAI. The Chairperson and Chief Executive Officer of Food Safety and Standards Authority of India (FSSAI) have already been appointed by Government of India. The Chairperson is in the rank of Secretary to Government of India.

4.2. FSSAI Registration & Licensing Process:

According to Section 31(1) of Food Safety and Standards (FSS) Act, 2006, Every Food Business Operator (FBO) in the country is required to be licensed under the Food Safety & Standards Authority of India (FSSAI).

As per FSS (Licensing & Registration) Regulations, 2011, Licenses and Registrations are granted to FBOs in a 3 tier system

- Registration - for petty FBOs with annual turnover less than Rs 12 lakhs
- State license - for medium-scale food manufacturers, processor and transporters
- Central License - for large-scale food manufacturers, processor and transporters

FSSAI registration is done online on the FSSAI website through Food Safety Compliance System (FoSCoS)

- FoSCoS has replaced the Food Licensing and Registration System (FLRS).
- Petty food business operators are required to obtain FSSAI Registration Certificate
- "Petty Food Manufacturer" means any food manufacturer, whomanufactures or sells any article of food himself or a petty retailer, hawker, itinerant vendor or temporary stall holder (or) distributes foods including in any religious or social gathering except a caterer;

or

- Other food businesses including small scale or cottage or such other industries relating to food business or tiny food businesses with an annual turnover not exceeding Rs. 12lakhs and/or whose production capacity of food (other than milk and milk products and meat and meat products) does not exceed 100 kg/ltr per day

Any person or entity that does not classify as a petty food business operator is required to obtain an FSSAI license for operating a food business in India.

FSSAI License - two types - State FSSAI License and central FSSAI License

Based on the size and nature of the business, the licensing authority would change.

- Large food manufacturer/processors/transporters and importers of food products require central FSSAI license
- Medium-sized food manufacturers, processor and transporters requires state FSSAI license.

- License period: 1 to 5 years as requested by the FBO.
- A higher fee for obtaining FSSAI license for more years.
- If a FBO has obtained the license for one or two years, renewal may be done, no later than 30 days prior to the expiry date of the license.

4.3. Food Safety & FSSAI Standards & Regulations:

Food Standards

"2.9: Salt, Spices, Condiments and related products: 2.9.29 asafoetida"

ASAFOETIDA (Hing or Hingra) means the oleogumresin obtained from the rhizome and roots of *Ferula alliaces, Ferula rubricaulis* and other species of Ferula. It shall not contain any colophony resin, galbonum resin, ammoniaccum resin or any other foreign resin. Hing shall conform to the following standards, namely:

(i) Total ash content shall not exceed 15 per cent by weight.

(ii) Ash insoluble in dilute hydrochloric acid shall not exceed 2.5 per cent by weight.

(iii) The alcoholic extract (with 90 per cent alcohol) shall not be less than 12 per cent as estimated by the U.S.P. 1936 method.

(iv) Starch shall not exceed 1 per cent by weight.

Hingra shall conform to the following standards namely:—

- The total ash content shall not exceed 20 per cent by weight.
- Ash insoluble in dilute hydrochloric acid shall not exceed 8 per cent by weight.
- The alcoholic extract (with 90 per cent alcohol) shall not be less than 50 per cent as estimated by the U.S.P. 1936 method.
- Starch shall not exceed 1 per cent by weight.

Compounded asafoetida or Bandhani Hing is composed of one or more varieties of asafoetida (Irani or Pathani Hing or both) and gum arabic, edible starches or edible cereal flour.

It shall not contain:—

a. Colophony resin,

b. Galbanum resin,

c. Ammoniaccum resin,

d. Any other foreign resin,

e. Coal tar dyes,

f. Mineral pigment,

g. More than 10 per cent total ash content,

h. More than 1.5 per cent ash insoluble in dilute hydrochloric acid,

i. Less than 5 per cent alcoholic extract, (with 90 per cent of alcohol) as estimated by the u.s.p. 1936 method.

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 equipment's 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.

4.4. Labelling Standards (Regulation 2.5 of FSS)

Labelling requirements for packaged food products as laid down in the Part 2.4 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

Provided that — (i) the nutritional information may not be necessary, in case of foods such as raw agricultural commodities, like, wheat, rice, cereals, flour, spice mixes, herbs, condiments, table salt, sugar, jaggery, or non –nutritive products, like, soluble tea, coffee, soluble coffee, coffee-chicory mixture, packaged drinking water, packaged mineral water, alcoholic beverages or flour and vegetables, processed and pre-packaged assorted vegetables, flours, vegetables and products that comprise of single ingredient, pickles, papad, or foods served for

immediate consumption such as served in hospitals, hotels or by food services vendors or halwais, or food shipped in bulk which is not for sale in that form to consumers.

Wherever applicable, the product label also must contains 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 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 Labeling Regulation 2011, "prepackaged" or "pre packed food" including multi-piece packages, should carry mandatory information on the label.

CHAPTER - 5
OPPORTUNITIES FOR MICRO/UNORGANIZED ENTERPRISES

5.1. PM-FME Scheme:

Ministry of Food Processing Industries (MoFPI), in partnership with the States, has launched an all India centrally sponsored "PM Formalisation of Micro Food Processing Enterprises Scheme (PM FME Scheme)" for providing financial, technical and business support for up-gradation of existing micro food processing enterprises. The objectives of the scheme are:

I. Support for capital investment for up-gradation and formalization with registration for GST, FSSAI hygiene standards and Udyog Aadhar;
II. Capacity building through skill training, imparting technical knowledge on food safety, standards & hygiene and quality improvement;
III. Hand holding support for preparation of DPR, availing bank loan and up-gradation;
IV. Support to Farmer Producer Organizations (FPOs), Self Help Groups (SHGs), producers cooperatives for capital investment, common infrastructure and support branding and marketing.

Reference

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