

GARLIC PACKAGING



AATMANIRBHAR BHARAT

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

INTRODUCTION

- India is one of the leading Garlic (*Allium sativum*) producing country.
- The area under cultivation and production of garlic in India is increasing.
- Madhya Pradesh, Gujarat, Orissa, Rajasthan, Karnataka, Tamil Nadu, Maharashtra, Bihar and UP are the major Garlic producing states.





- Study revealed that the area and production of garlic is increasing in most of the states.
- The prominent Garlic production areas of Rajasthan state are in the districts of Chittoregarh, Jhalawar, Baran and Kota. Rajasthan has a specific Mandi for marketing of Garlic at Chhipabarod in Baran district.
- Garlic is the most important foreign exchange earning spicy vegetable crop, commercially grown in India.





- Digestive, Carminative and Anti-rheumatic properties.
- Used in Aurvedic formulation since ancient times for curing muscular pain, giddiness, intestinal ulcer.
- Consumed as green as well as dried in the spice form
- Used as ingredient to flavour the various vegetarian, non-vegetarian dishes and pickles.





- Pickles, chut-neys, curry powders are prepared from Garlic cloves.
- Garlic is also used to disguise the smell and flavor of salted meat and fish.
- Dehydrated Garlic in powdered or granulated form is being used in place of fresh bulbs in many countries.





ADVANTAGES OF VALUE ADDED PRODUCTS FROM GARLIC

- Increase the storage life
- To reduce the transportation cost
- More foreign ex-change.
- Garlic is being exported either in the form of dehydrated flakes or dehydrated powder
- Dehydrated products are more uniform in flavor than the stored bulbs.





- Large amounts of dehydrated products (flakes, Garlic oil, and dehydrated Garlic powder) are exported .
- (Peeled processed Garlic, crushed or chopped Garlic, Garlic gran-ules and fried/roasted Garlic)
- Fried Garlic granules are also prepared from fresh Garlic bulbs and having good demand in foreign market.



- Packaging is the science, art and technology of enclosing or protecting products for distribution, storage, sale, and use.
- Packaging also refers to the process of designing, evaluating, and producing packages.
- The wrapping material around a consumer item that serves to contain, identify, describe, protect, display, promote and otherwise make the product marketable and keep it clean



- The Packaging refers to all those activities related to designing, evaluating and producing the container for a product.
- Simply, the box-like container, wherein the product is stored to protect it from any physical damage and at the same time attracting the customer through its appeal is called as packaging.



Moisture barrier- Protection against environmental conditions

Oxygen barrier- protection against microorganisms

Strength properties- to withstand mechanical hazard during transportation and storage

Good printability

Packaging protects the product from spoilage, breakage, leakage, damage, climate etc



Packaging is used for promoting purposes. An attractive color, photograph or type phase etc can promote the products.



Packaging greatly helps in identification of product.
It give the product unique identity

Through packages a product can be easily differentiated with each other
products in the market.
It ensures the individuality of the products.



The size and shape of the package should be such that it should be convenient to open handler and use consumer.

Packaging helps to prevent adding of unnecessary contents into the product or it protect from corruption of product especially food items.





- Medium in the marketing mix
- Promotion campaigns
- Pricing criterion
- Defining the character of new products
- Setter of trends
- Brand identity
- Shelf impact in all product groups



The objects enclosed in the package may require protection from mechanical shock, vibration, electrostatic discharge, compression, temperature, etc.



Packages can have features that add convenience in distribution, handling, stacking, display, sale, opening, reclosing, use, dispensing, reuse, recycling, and ease of disposal .



The packaging and labels can be used by marketers to encourage potential buyers to purchase the product.





SELECTION CRITERIA FOR PACKAGING MATERIAL

- Product or pack contents
- Application of the product
- Content stability.
- Need of protection from environmental factors
- Content reactivity
- Acceptability to the consumer
- The packaging process regulatory, legal and quality issue





CHARACTERISTICS OF PACKAGING MATERIAL

- Tamper-resistance.
- FDA approved .
- Non-toxic .
- Not impart odor/taste to the product.
- Must not reactive with the product .
- Protect the preparation from environmental conditions.





PRIMARY PACKAGING



- Primary packaging is the packaging in direct contact with the product itself and is sometimes referred to as a consumer unit.
- The main purpose of primary packaging is to contain, protect and/or preserve the finished product, particularly against contamination.





PRIMARY PACKAGING

- This is the first layer containing the finished product, such as a plastic pouch holding whole-grain cereal or the cardboard box containing the pouch of cereal.
- This type of packaging is often intended for the end user or consumer. In addition to making it easier for consumers to handle products, it makes the products look more appealing and can be used for communication purposes to convey printed information about the products to consumers.





SECONDARY PACKAGING

- This type of packaging is used outside of primary packaging to group a certain number of products to create a stock-keeping unit, commonly referred to as a SKU.
- It facilitates the handling of smaller products by collating them into a single pack.





SECONDARY PACKAGING

- This type of packaging also provides supplementary protection to help maintain the integrity of the primary packaging. In addition, it can serve as a shipping container for small shipments, making it highly useful in e-commerce.
- Secondary packaging is frequently made up of multiple components (box, padding, separators, reinforcements, bags, paper, etc.).





SECONDARY PACKAGING

- It may also be customized to make a product easily identifiable in the warehouse setting. In the case of cereal, for example, the secondary packaging would be the corrugated cardboard box containing multiple individual boxes of cereal.





TERTIARY PACKAGING

- Often referred to as bulk or transit packaging, this type of packaging is used to group larger quantities of SKUs to transport them from point A to point B
- (e.g. from production facility to point of sale). During this stage, products are handled as distribution units.

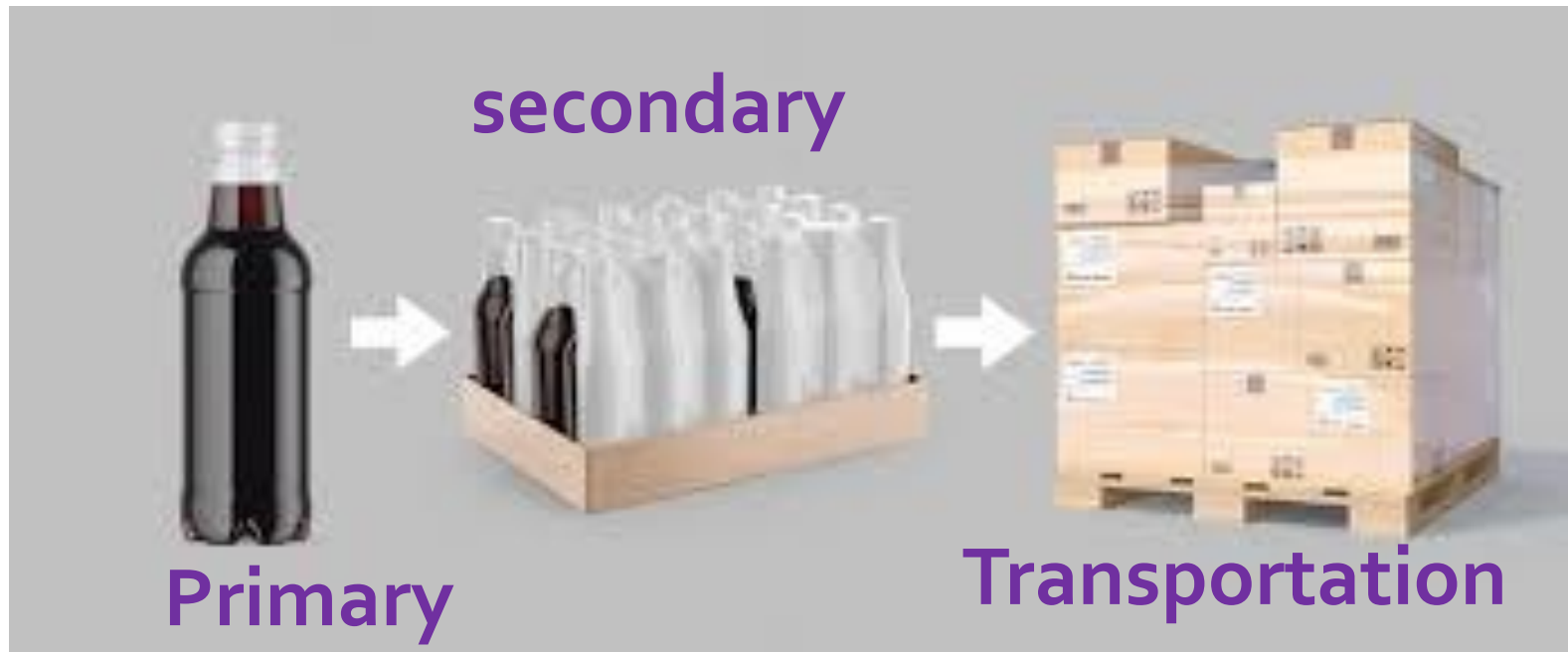




TERTIARY PACKAGING

- This type of packaging makes it easier to transport large and/or heavy loads safely and securely. In addition to helping prevent damage, it consequently facilitates the handling, storage and transport of goods.
- An example of tertiary packaging is a stretch-wrapped pallet containing a quantity of cardboard boxes (secondary packaging) to enable efficient product shipping.







BULK PACKAGING-IMPORTANCE.

- Bags are flexible, collapsible and durable.
- Product wastage/spillage and tampering can be avoided.
- Since the handling is mechanized, less labour is required.
- Saving in time for loading and unloading.
- Bags are light in weight and, therefore, freight costs are reduced.
- Creates eco-friendly, pollution free working atmosphere.





GARLIC PACKAGING NET BAG

- Garlic is usually packed and transported in jute gunny bags and net bags
- The plastic based alternate packaging materials are used to overcome the contamination problems associated with jute.
- Eco friendly packaging materials like jute gunny bags, paper box etc can be utilized.





SELECTION OF CONSUMER PACKAGES

- Shelf-life period of the product.
- Climatic conditions during storage.
- Transportation and distribution.
- Type/sector of market.
- Consumer preferences.
- Printability and aesthetic appeal.





GLASS CONTAINERS

- Bottles/Jars are commonly used for dehydrated garlic, in brine, pickle etc
- 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 packaging materials are strong and corrosion resistant but costly.
- Glass bottles were found to be better containers for storing garlic pickle and dehydrated products.
- Eliminates the risk of potentially harmful chemicals found in some plastics that can leach into food.





PET BOTTLES

- PET bottles have obvious advantages over glass.
- Pet Bottles are unbreakable and light weight .
- More attractive.
- Better gas barriers and are still cost-effective.





FLEXIBLE PACKAGING

- The printed flexible pouches are generally laminates of various compositions.
Requirements for materials
 - Barrier property
 - Good substrate bond & Heat seal property
- Lighter in weight and Economical.





FLEXIBLE PACKAGING

Structures used in EO : 3 and 5 layer

- LD - LLD-HMHDPE- LD
 - LDPE/LLDPE/ Metallocene + Masterbatch- Tie layer - Nylon
 - Barrier Layer - Tie Layer – LDPE/LLDPE / Metallocene. Laminates
- Pouches from 5 layer nylon barrier film:
- Prevent oil oxidation, seal strength





FLEXIBLE PACKAGING ISSUES

- Leakages in transportation:
 - – Losses
 - – ‘Printing ink dissolves in oil’.

More Shelf space,

Difficult to display

Rodent problem in rural areas

Spillage while refilling: wastage.

Recyclability





COMPOSITE CONTAINERS

- Used for packaging of garlic paste.
- Side wall is PE coated foil laminated spirally wound paper.
- The top and bottom ends of the container may be made from metal or plastic.
- The inner face is coated with plastic film or a combination of film and aluminum foil- optimum barrier properties against moisture and oxygen





KRAFT PACKAGING

- Very popular material in food packaging.
- Made by sulphate pulping process.
- Poly amide or polyamine resin is used to coat or laminate to improve barrier properties.
- Good strength, printability and appearance.
- Low cost, wide availability and low weight.





DETERIORATIVE FACTORS OF DEHYDRATED GARLIC PRODUCTS

- Losing crispness
- Tendency to get rancid
- Chances of mould growth on prolonged exposure to moisture.





GARLIC PASTE

- 1.PET BOTTLES
- 2.GLASS BOTTLES
- 3..FLEXIBLE PACKAGING
- 4. COMPOSITE CONTAINERS





GARLIC SALT

- 1.PET BOTTLES
- 2.GLASS BOTTLES
- 3..FLEXIBLE PACKAGING





DETERIORATIVE FACTORS OF GARLIC PICKLE

- Low acidity , lactic acid bacteria quickly than other microbes, and may spoil easily .





SUITABLE CONTAINER FOR GARLIC PICKLE

- Odorless and chemically inert with all food products.
- Maintains product freshness for a long period of time.
- Rigidity - good insulation, novel designs are possible.
- Benefits the environment as it is reusable and recyclable.





SUITABLE CONTAINER FOR GARLIC PICKLE

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





SUITABLE CONTAINER FOR GARLIC PICKLE

- PET bottles have advantages over glass.
- Unbreakable and light weight but also more attractive.
- They have better gas barriers and are still cost-effective.
- BPA Free





SUITABLE CONTAINER FOR GARLIC PICKLE

- Flexible thermoplastic films of multi layer or monolayer construction, or their laminates with aluminium foil
- provides a high resistance to the passage of oxygen, light and water vapour and to produce an effective heat seal.
- The air tight sealing can be done to retain the contents in a fresh condition.





PACKAGING MACHINERY





PACKAGING MACHINERY





PACKAGING MACHINERY

Semi Automatic Filling Machine.

Fully Automatic Filling Machine.





PACKAGING MACHINERY

Semi Automatic Filling Machine for Pickle

Fully Automatic Filling Machine for Pickle





FSSAI LABELLING REQUIREMENTS

- Name, trade name or description
- Name of ingredients used in the product in descending order of their composition by weight or volume
- 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)
- Nutritional Information
- Information Relating to Food Additives, Colors and Flavors
- Instructions for Use



FSSAI LABELLING REQUIREMENTS

- Veg or Non-Veg Symbol
- Net weight, number or volume of contents
- Distinctive batch, lot or code number
- Month and year of manufacture and packaging
- Month and year by which the product is best consumed
- Maximum retail price





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THANKYOU