MINISTRY OF FOOD PROCESSING INDUSTRIES
GOVERNMENT OF INDIA

NIFTEM
KNOWLEDGE • INNOVATION • OUTREACH

PACKAGING OF PEANUT OIL

AATMANIRBHAR BHARAT

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

INTRODUCTION

- The Groundnut or Peanuts species belongs to the family of *Fabaceae .*
- The oil extracted from groundnut/peanuts is also known as Arachis Oil, which is a mild tasting vegetable oil with a light-yellow transparency, clear colour and lustre, mild pleasant fragrance accompanied by a good taste and relatively easy to digest.
- Groundnut oil is generally used in cooking, frying and manufacturing of margarine and shortening throughout the world.

FACTORS AFFECTING KEEPING QUALITY OF PEANUT OIL

The basic factors that may alter the quality of packed peanut oil are:

- Dissolved oxygen in the oil, that is the oxygen that remains in the container free
- Headspace after it is sealed & the oxygen diffused through the walls
- Light, which passes through containers, activates the oxidation process
- Autocatalytic oxidation
- Temperature & Humidity during storage
- Migration of substances from the container to the oil

DESIRABLE CHARACTERISTICS OF PACKAGING MATERIAL

- Must comply with the provisions made under the food safety and standards (packaging and labelling) regulations, 2011
- Packaging material should not react with products
- Available at low cost
- Non toxic packaging material
- Should not allow printing ink to penetrate into the product
- Protect against tempering
- Protects against spoilage causing agents
- Withstand wear and tear during transportation

- Convenience in use
- Should be reuse or recyclable
- Compatible with the packaging machine
- Reduction of oxygen in the packaging headspace and light exposure are key factors in lowering lipid oxidation and off-flavor development, thus keeping quality.
- Using of inert gases, as argon and nitrogen, can solve many problems and provide an optimal product storage in several production steps during storage and bottling.

NEED OF PACKAGING

- **CONTAINMENT :** protecting the environment from the myriad of products that are moved from one place to another.
- **PROTECTION :** to protect its contents from outside environmental influences such as water, water vapor, gases, odors, microorganisms, dust, shocks, vibrations and compressive forces.
- **CONVENIENCE :** Products designed to increase convenience include foods that are prepared and can be cooked or reheated in a very short time, preferably without removing them from their primary package.
- **COMMUNICATION :** Packaging contains a lot of information such name of its manufacturer, product name, terms and uses, date of manufacturing, best

PACKAGING & FOOD SAFETY

- Food packaging is an integral component of food industry and helps to store food in hygienic manner, it can at times be a cause of concern for food safety.
- Some packaging materials such as certain types of plastic, polythenes, and styrofoam can release toxins when they are heated and can be dangerous to consumers.
- Packaging materials which are irradiated (along with food) can transfer unsafe non food substances into the food.
- Food packaging makes use of a variety of substances, including dyes for printing colourful labels, and glues and adhesives for keeping packaging closed.
- To protect consumers effectively, the relevant authority individually certifies each of these food packaging materials subjecting them to rigorous testing protocols.

TYPES OF PACKAGING

- **PRIMARY PACKAGING :** Primary package are those package which directly came into contact with food products. It provides first or initial layer of protection to the food products. Examples of primary packaging includes parchment paper, greaseproof paper, paperboard cartons, and plastic pouches.
- **SECONDARY PACKAGE :** Secondary package are those package which surrounds or contains the primary package. Ex. Corrugated case, Boxes.
- **TERTIARY PACKAGE :** It contains number of secondary package together. Mainly used for bulk handling of food products.

PACKAGING MARKET SHARE FOR EDIBLE OIL

Quantity of oil in different packaged variants:-

Pouch: 33 Lac MT

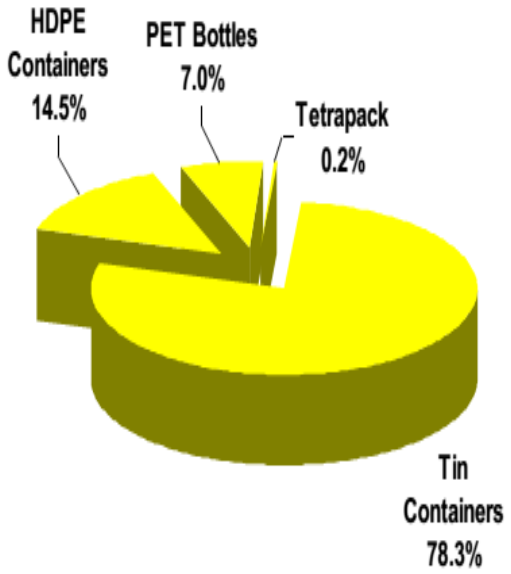
Tin : 40 Lac MT

HDPE : 15 L : 6 Lac MT.

HDPE : 1L,2 L:3 Lac MT, 5L: 6 Lac MT

Tetrapak : 0.50 Lac MT

PET : 7 Lac MT.



TYPES OF PACKAGING MATERIAL

S. No	Type of Packing Material and Standards	Tare Weight/ 1 Kg Pack	Quantity Packed
01	High Density Polyethylene (HDPE) (IS-10840:1994)	40 g	200 g -15 Kg
02	Pet Bottle (IS-12887:1989)	22-28 g	200g- 2Kg
03	Tin Can (IS-10339:1988 & IS-10325:1989)	63 g	1 kg-15 kg
04	Flexible Plastic Pouches (IS-12724:1989)	9-13 g	200g-1 Kg
05	Poly Vinyl Chloride (PVC) Bottles (IS-12883:1989)	22-28 g	200g- 2Kg

PACKAGING MATERIAL FOR PEANUT OIL

1. TIN CANS:

- Used for customized pack of different capacities.
- Properly lacquered tin cans are must be use.
- Must be sealed properly to maintain the quality & oxidation
- Higher cost is one of the drawback.

PACKAGING MATERIAL FOR PEANUT OIL

2. GLASS BOTTLES & JARS:

- Used for Retail Packaging
- Provide excellent protection
- Not in much use because of their fragility and high weight.
- Higher cost is one of the drawback

PACKAGING MATERIAL FOR PEANUT OIL

3. LINED CARTON OR STAND ALONE PAPER PACK:

- Available in various shape and size.
- Flexible pouch may be made from laminates or Aluminum along with box is widely used.
- Attractive and economical pack

PACKAGING MATERIAL FOR PEANUT OIL

4. PET or PVC:

- Widely used for Peanut Oil packaging because of excellent odour free and gas barrier properties.
- Blow moulded bottles made up of PET or PVC is used.
- Recyclable

PACKAGING MATERIAL FOR PEANUT OIL

5. PLEXIBLE FILMS/POUCHES/LAMINATES

- Made from laminates or multi layer films.
- Lamination (bonding together) of two or more films improves the appearance, barrier properties or mechanical strength of a package.
- May be in the form of pillow pouch or as self-standing pouches.
- Cheapest than any other packaging system.
- Selection of laminate or a multi layer film is governed primarily by the compatibility of the contact layer, heat-sealing ability and heat-seal strength and shelf life required.

RECENT PACKAGING AND FILLING SOLUTIONS

1. Liquid Nitrogen Dosing System

- Nitrogen: completely inert, totally tasteless, odorless.
- Accepted in the food and beverage industry.

Salient Features:

- Liquid nitrogen replaces head-space oxygen.
- Extends shelf life, Addresses rancidity
- Preserves the freshness and taste of product.
- Increases Top load
- Averts bottle paneling or collapsing.
- No deformation of filled container.
- Possible reduction of weight: 2-3 g for 1 L PET.
- Consistent pressure from container to container

2 . Opaque PET:

- Glossy PET: 2 L and 5 L pack.
- ISBM surface advantage,
- Distinct package appeal,
- Enhanced UV resistance.

3. Aesthetics:

- PVC sleeves give impression of seepage in mustard oil
- Feel of ‘sweating effect’ (doesn’t actually happen).
- Use of ‘Pearlised BOPP’ sleeves.
- No ‘sweating effect’ in PET.
- Cost – competitive
- Aesthetics improvement

4. Aspectic Packaging

Aseptic packaging is the filling of sterile containers with a commercially sterile product under aseptic conditions, and then sealing the containers so that re-infection is prevented; that is, so that they are hermetically sealed.

Aseptic packaging are used for :

✓To take advantage of high temperature.

✓Increase shelf life of food products at normal temperature.

✓In package sterilization.

LABELING

- Labeling is a means of performing the communication function of packaging, informing the consumer about nutritional content, net weight, product use and so on.
  - Labeling acts as a silent salesman of a company
  - Shape and design of the container attracts the customers.

PACKAGING & LABELING LAWS - FSSAI

General requirement for Packaging:

- Every pre packaged food shall carry a label containing information as required here under Food Safety and Standards (Packaging and labelling) Regulations.
- The particulars of declaration required under these Regulations to be specified on the label shall be in English or Hindi in Devnagri script: Provided that nothing herein contained shall prevent the use of any other language in addition to the language required under this regulation.
- Label in pre-packaged foods shall be applied in such a manner that they will not become separated from the container.
- Contents on the label shall be clear, prominent, indelible and readily legible by the consumer under normal conditions of purchase and use.

PACKAGING & LABELING LAWS - FSSAI

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Labeling should contain following information:

- FSSAI License/Registration Number
- Name of the Food
- List of the Ingredients
- Nutritional Information
- Net Weight/Quantity
- Lot/Code/Batch Identification number
- Date/Month/ of Manufacturer
- Best Before or Use by Date or Date of Expiry
- Declaration regarding Vegetarian & Non Vegetarian
- Instruction of Use

LABELING REQUIREMENTS FOR EDIBLE OIL

Nutritional facts per 100g	
Energy	**Kcal**
Protein	gm
Carbohydrates	g
Sugar	g
Fat	g
Saturated fatty acids	g
Monounsaturated fatty acids	g
Polyunsaturated fatty acids	g
Cholestrol	g

LABELING REQUIREMENT FOR EDIBLE

Size of the logo	
Area of the principal display	Minimum size of diameters in mm
Up to 100cms.	Square. 3
Above 100 cms. Square upto 500 cms	Square. 4
Above 500 cms. Square upto 2500 cms.	Square. 6
Above 2500 cms.	Square. 8

The symbol shall be prominently displayed

i. On the package having contrast background on principal display panel;
ii. Just close in proximity to the name or brand name of the product;
iii. On the labels, containers, pamphlets, leaflets, advertisements in any media;

Provided also that the provisions of regulation shall not apply in respect of mineral water or packaged drinking water or carbonated water or alcoholic drinks, or liquid milk and milk powders.

LABELING REQUIREMENT FOR EDIBLE OIL

The specifics requirements and restrictions labelling of packages of edible oils and fats are as given below:-

- The words like, “Super Refined”, “Extra- Refined”, “ Micro- Refined”, “ Double- Refined”, “Ultra- Refined”, “ Anti- Cholesterol”, “ Cholesterol Fighter”, “ Soothing to Heart”, “ Cholesterol Friendly”, “ Saturated Fat Free” or any other words which are an exaggeration of the quality of the product are not allowed to be used on the package, label or the advertisement of edible oils and fats.

- The containers of solvent-extracted oil packed for sale shall bear the following additional label declaration:-

- If the oil is not conforming to the standards of “refined” solvent extracted oils specified in regulation of Food Safety and Standards(Food Products Standards and Food Additive) Regulation, 2011 for Edible Vegetable oil Vanaspati, then a declaration as given below shall be given on the label.

- **“NOT FOR DIRECT EDIBLE CONSUMPTION”**
  If the oil is complying with the requirements for the “ semi-refined” or “raw-grade I” grades of oil specified in regulation of Food Safety and Standards(Food Products Standards and Food Additive) Regulation, 2011, then a declaration as given below shall be given on the label.

- **“FOR INDUSTRIAL NON- EDIBLE USES ONLY”**
  Every container of solvent shall bear the Indian Standards Institution certification mark.

CONTACT DETAILS

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