Ministry of Food Processing Industries
Government of India

NIFTEM
KNOWLEDGE • INNOVATION • OUTREACH

PACKAGING OF CHEESE

AATMANIRBHAR BHARAT

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

INTRODUCTION

According to the FSSR (2011), cheese means the ripened or un-ripened soft or semihard, hard and extra hard product, which may be coated with food grade waxes or polyfilm, and in which the whey protein/casein ratio does not exceed that of milk. Cheese is obtained by coagulating wholly or partly milk and/or products obtained from milk through the action of non-animal rennet or other suitable coagulating agents and by partially draining the whey resulting from such coagulation and/or processing techniques involving coagulation of milk and/or products obtained from milk which give a final product with similar physical, chemical and organoleptic characteristics.

The product may contain starter cultures of harmless lactic acid and/or flavor producing bacteria and cultures of other harmless microorganisms, safe and suitable enzymes and sodium chloride. It may be in the form of blocks, slices, cut, shredded or grated cheese.

INTRODUCTION

Packaging of cheese is mainly done to protect the cheese at the time of storage and transportation.

Cheese is packaged mainly in two forms:

a) Packaging cheese for storage and ripening (bulk packaging)

b) Packaging for consumers (retail packaging)

PACKAGING

- Packaging is an important part of food manufacturing process. It protect the food products from physical ,chemical, biological damages.
- Without packaging, materials handling would be a messy, inefficient and costly exercise and modern consumer marketing would be virtually impossible.
- Packaging Institute International defined packaging as the enclosure of products, items or packages in a wrapped pouch, bag, box, cup, tray, can, tube, bottle or other container form to perform one or more of the following functions: containment, protection, preservation, communication, utility and performance. If the device or container performed one or more of these functions, it was considered a package.

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.

NEED OF PACKAGING

- **COMMUNICATION :** Packaging contains a lot of information such name of its manufacturer, product name, terms and uses, date of manufacturing, best before. nutritional information thus helping the consumer to be more informed.

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 MATERIAL FOR CHEESE

Bulk Packaging of Cheese

Paraffined or vacuum packed in flexible film are in use.

Vacuum packaging machines, gas flushing machines, over wrapping machines and vacuum skin packaging machines are require for vacuum packaging

Paraffining is now completely replaced by film packaging as it causes considerable loss of cheese while removing paraffin.

PACKAGING MATERIAL FOR CHEESE

- Packaging of cheese is mainly done to protect it from outside environment, especially after the completion of process so that cheese can retain moisture, flavor, freshness for a longer period of time.

PACKAGING MATERIAL FOR CHEESE

1. LDPE :

- Low-density polyethylene is heat sealable, inert, odor free and shrinks when heated.
- It act as a barrier to moisture and has high gas permeability
- It is less expensive, therefore widely used.
- Has ability of fusion welded to itself to give good, tough, liquid-tight seals.

PACKAGING MATERIAL FOR CHEESE

2. PET : PET can be made into film by blowing

or casting.

- Melting point of PET is higher than PP which is around 260°C and due to the manufacturing conditions does not shrink below 180°C

- PET is ideal for high-temperature applications

- It also act as good barrier of oxygen and water vapor.

PACKAGING MATERIAL FOR CHEESE

3. ALUMINIUM CAN

- Aluminum is used for packaging as it is highly malleable.
- It can be easily converted to thin sheets and folded, rolled or packed.
- Aluminum cans acts as a total barrier to light and oxygen odors and flavors, moistness, and used broadly in food packaging, including long-life packs.

PACKAGING MATERIAL FOR CHEESE

4. PAPER BOARD (White Lined Chipboard)**:**

Mostly used for cheese packaging because some variants of cheese is having low moisture.

- ✓ Recycled
- ✓ Economic
- ✓ Easy to print
- ✓ May take any shape
- ✓ Lightweight

PACKAGING MATERIAL FOR CHEESE

5. Paper wraps/Cheese paper:

Cheese paper is a special paper produced specifically for wrapping and preserving cheese. The 2-ply paper allows proper oxygen exchange as one ply is a permeable cellophane that allows the cheese to breathe, and the other is similar to butcher paper and retains moisture.

Formaticum is one of the well-known brands of cheese paper.

PACKAGING MACHINES

- ✓ Individual cheese packet
- ✓ Vacuum packaging
- ✓ Box making and packing machine

SOME RECENT TRENDS IN PACKAGING :

MODIFIED ATMOSPHERE PACKAGING:

- MAP can be defined as packaging of food items where atmosphere inside the packet has been modified to increase the shelf life of food products. It involves active modification or passive modification.
- In active modification air is displaced with a controlled, desired mixture of gases, and the process is called as gas flushing.
- Passive modification occurs due to respiration and the metabolism of microorganisms associated with the food.

SOME RECENT TRENDS IN PACKAGING :

ACTIVE AND INTELLIGENT PACKAGING :

- Active packaging is defined as packaging in which subsidiary constituents have been deliberately included in or on either the packaging material or the package headspace to enhance the performance of the package system.
- Intelligent packaging is defined as packaging that contains an external or internal indicator to provide information about the history of the package and/or the quality of the food.
- Various functions performed by intelligent packaging includes: Oxygen absorber, Carbon dioxide absorber or emitter, Ethylene absorber, Ethanol emitter, Moisture absorber.

SOME RECENT TRENDS IN PACKAGING :

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:

- A utensil or container made of the following materials or metals, when used in the preparation, packaging and storing of food shall be deemed to render it unfit for human consumption:—
- (a) containers which are rusty;
- (b) enameled containers which have become chipped and rusty;
- (c) copper or brass containers which are not properly tinned
- (d) containers made of aluminum not conforming in chemical composition to IS:20 specification for Cast Aluminum & Aluminum Alloy for utensils or IS:21 specification for Wrought Aluminium and Aluminum Alloy for utensils.

PACKAGING & LABELING LAWS - FSSAI

- **Labeling should contain following information:**

✓ Name of the food product.

✓ List of ingredients.

✓ Nutritional information.

✓ Declaration of VEG and NON VEG.

✓ Declaration of added food additives.

✓ Name and address of manufacturer.

✓ Customer call centre number/email

PACKAGING & LABELING LAWS - FSSAI

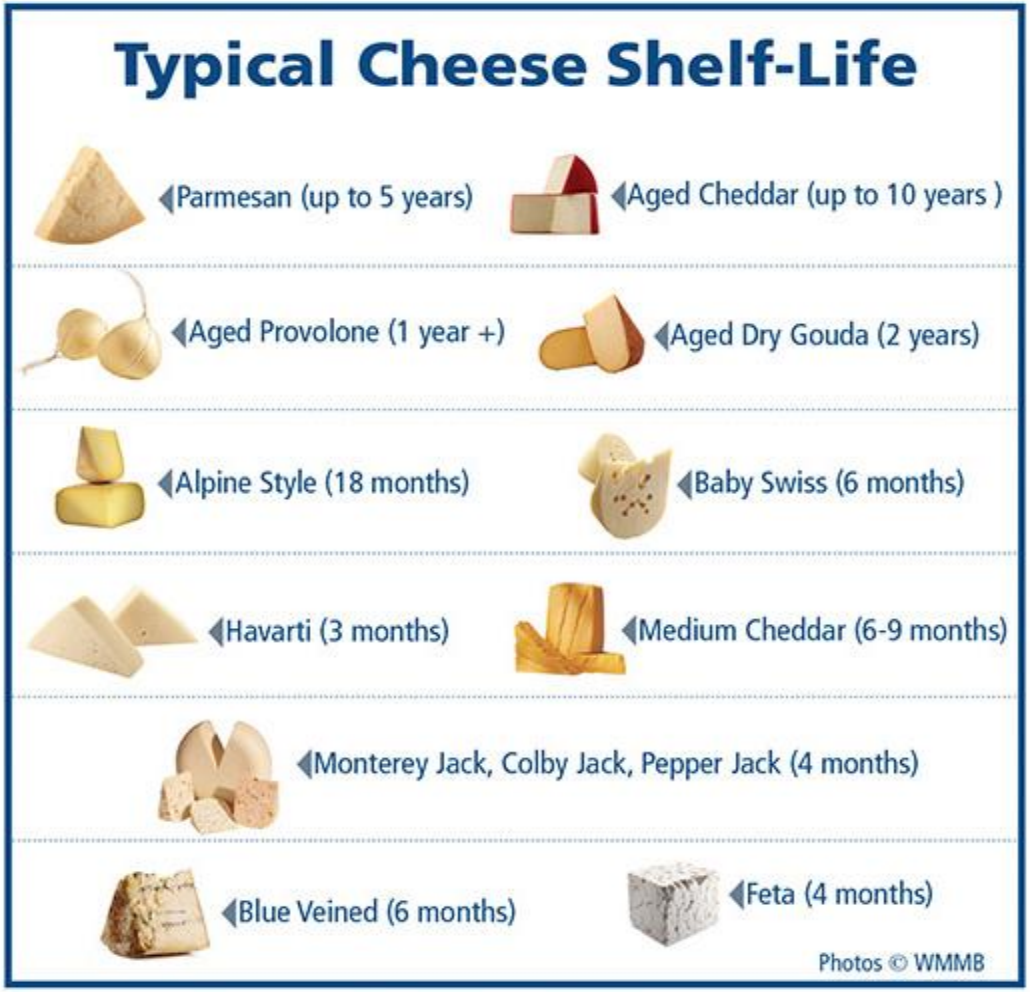
- ✓ Net quantity
- ✓ Code number
- ✓ Lot number/ Batch number.
- ✓ Date of manufacturing.
- ✓ Best before date
- ✓ Country of origin.
- ✓ Number of pieces
- ✓ Bar Code
- ✓ Brand Name etc

SHELF LIFE OF CHEESE

The shelf life of cheese can vary from a few weeks to multiple years depending on its composition and how it is packaged.

<u>Area of concern</u>

1. Growth of yeast and mold.
2. Moisture
3. Texture, off-flavors issues



STORAGE CONDITION OF CHEESE

- The recommended temperature range for storing cheese is between 35 and 45 degrees Fahrenheit, at a high humidity level, preferably at the bottom shelf of refrigerator to avoid accidentally freezing.
- A proper storage requires following :

➢ **Natural Hard Cheese and Semi-Hard Cheese and Processed (Cheddar, Swiss, Parmesan, Brick, Bleu, etc.):** Refrigerate in original package and over wrap tightly in aluminum foil, plastic wrap or plastic bag tightly closed to avoid drying.

➢ **Soft Cheese (cream, cottage, limburger, camembert):** Refrigerate tightly covered.

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