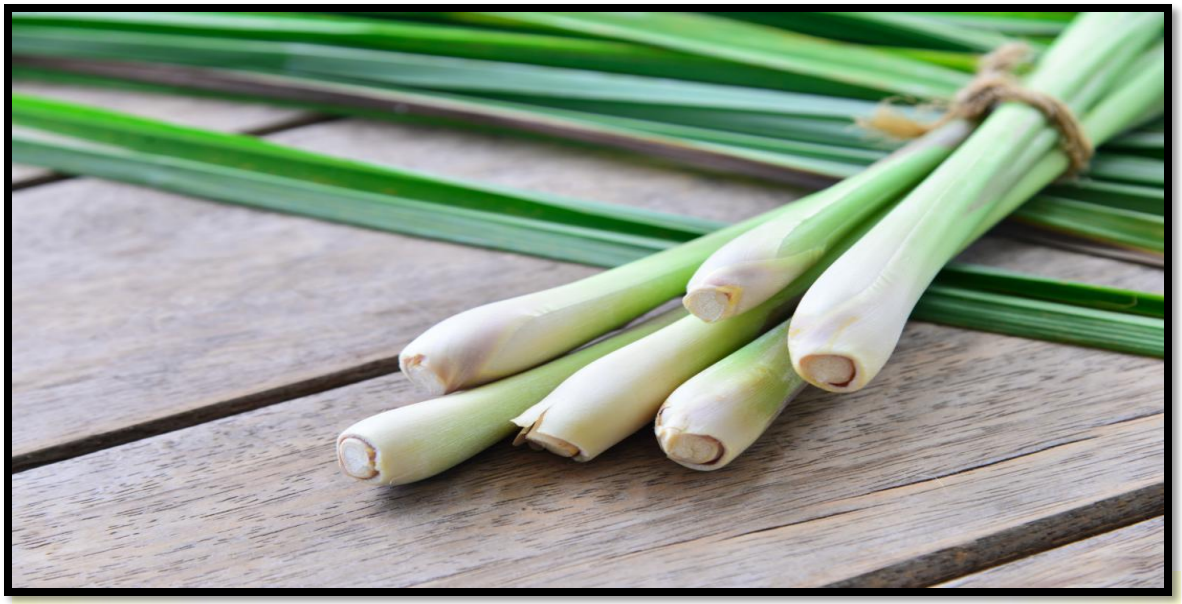
Ministry of Food Processing Industries
Government of India

NIFTEM
KNOWLEDGE • INNOVATION • OUTREACH

# LEMON GRASS-PACKAGING



**AATMANIRBHAR BHARAT**

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

# INTRODUCTION

**Scientific Name : *Cymbopogon citrates / Cymbopogon flexuosus***

**Family**: *Graminae* (Poaceae) and the genus *Cymbopogon*

**Common name:** Lemongrass

**Origin :** South Asia, South-east Asia, Australia

# INTRODUCTION

- Lemongrass is a generally fast growing tropical and sub tropical grass .The name of the lemongrass derives from lemon like fragrance of the oil present in shoot of the plant.
- Lemongrass has numerous therapeutic and medicinal uses and widely used as herbs in many countries. This plant is full of citrus flavor and can be dried, powdered or used fresh.
- Lemongrass whole plant or essential oil is commonly used in herbal teas, infusions, soups, fish, and seafood and curry preparation.

# 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

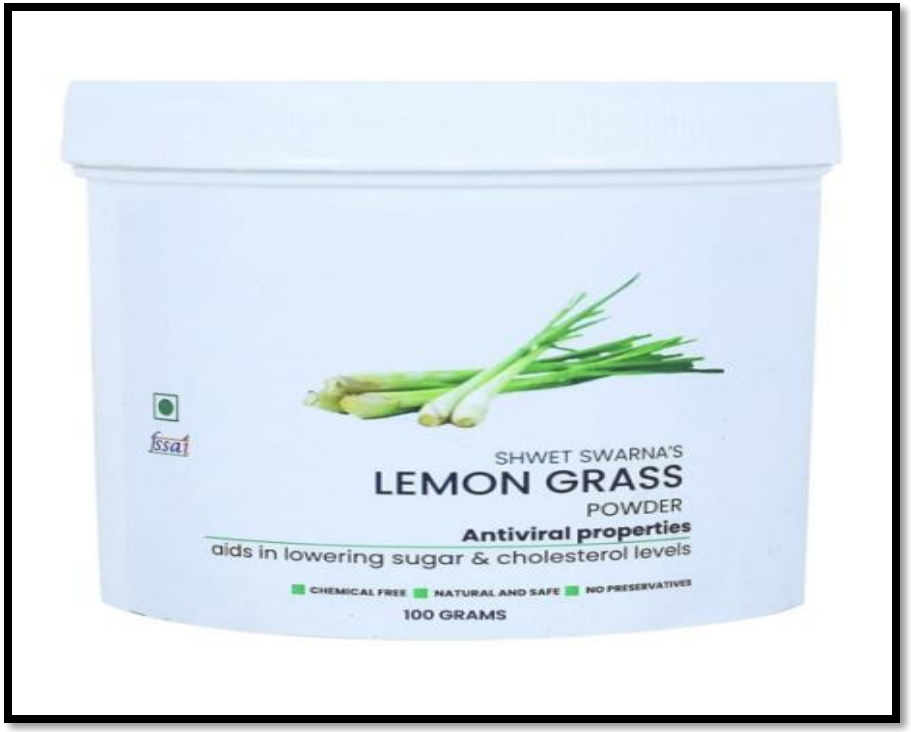
- **CONTAINMENT :** protecting the environment from the myriad of products that are moved from one place to another.

- **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 Metal cans, tea bag, paperboard cartons, glass bottles 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.

# SELECTION OF PACKAGING MATERIAL

- **Tensile Strength & Elongation:** Tensile Strength and Elongation properties of materials need to be studied as their running on high-speed machines should be suitable.
- **Tear Strength:** For a processed product, tear strength is of importance as low tear values are necessary and useful for opening packages by hands.
- **Heat Seal Strength:** The performance of a finished package is determined by the effectiveness of the package seal i.e. the permeability to water vapor, gases and volatiles increase if the seal is not perfect. Thermoplastic films such as polyethylene give excellent heat seals.

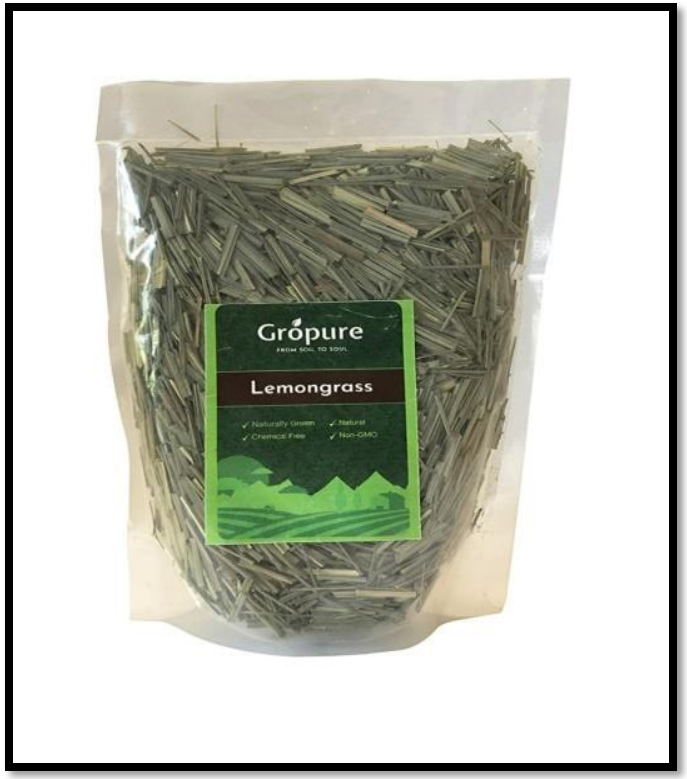
# SELECTION OF PACKAGING MATERIAL

- **Performance Properties :** Apart from the above mentioned important properties, a material has to perform well on machines; therefore knowledge of physical properties like slip, stiffness, blocking resistance is also necessary.
- Twist retention for twist wrap is also of importance. The initial function of packaging is to protect. However, the emotional role played by packaging is also of importance, especially when the confection is a gift. A sophisticated packaging using deluxe materials is often used as a way of expressing feelings.

# PACKAGING MATERIAL

## 1. LDPE :

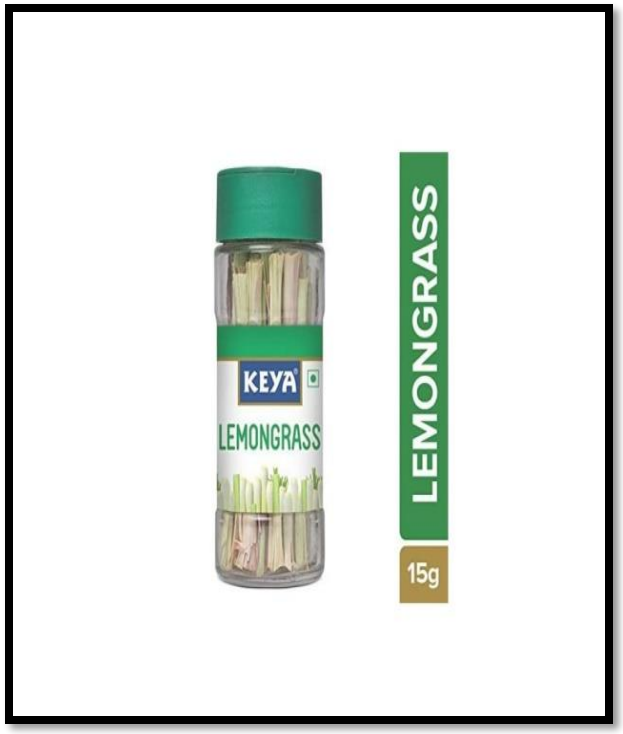
- Low-density polyethylene is heat sealable, inert, odour free and shrinks when heated.
- It act as a barrier to moisture and has high gas permeability
- It is less expensive, therefore widely used.
- Has ability of fusion welded to itself to give good, tough, liquid-tight seals.



# PACKAGING MATERIAL

## 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

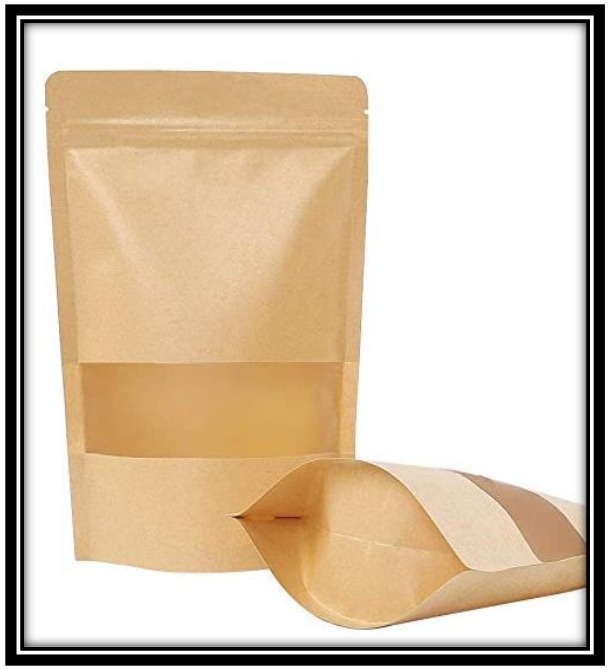
## 3. POLYPROPYLENE :

- 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.

# PACKAGING MATERIAL

## 5. PAPER BAG :

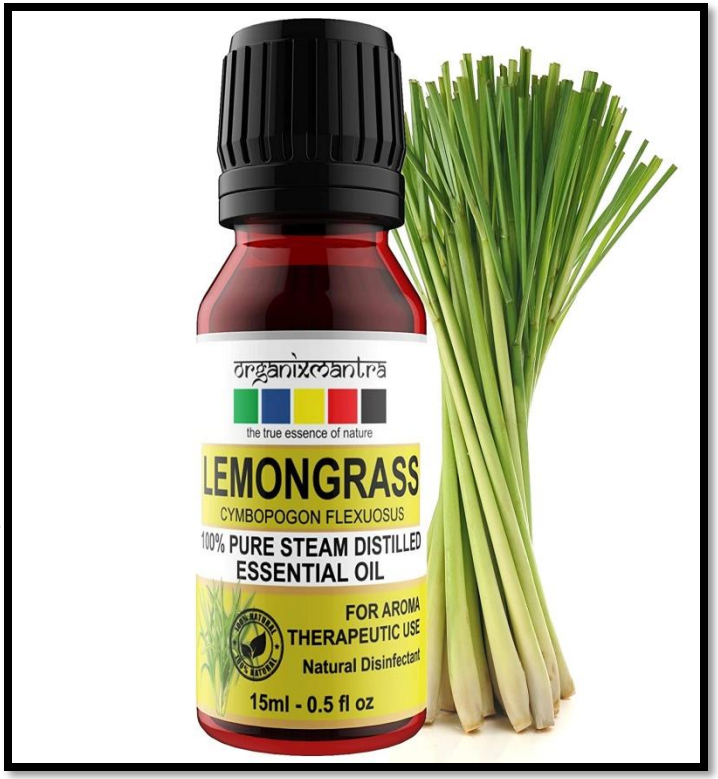
- The paper bag form an excellent packaging material. They may be kraft paper, plastic coated, solid fiber board, linear board, box board etc.
- The advantages of using of paper is that it is weightless, capability for printing on the surface, low cost and easy disposability.
- The disadvantage include low wet and tear strength.



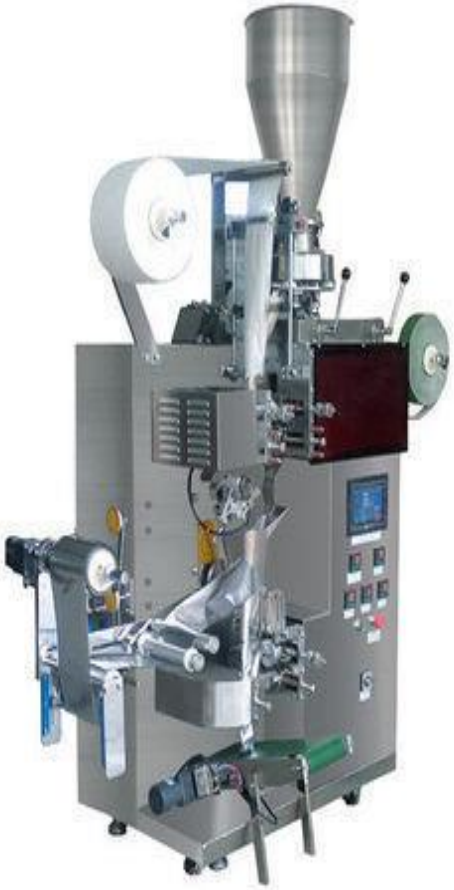
# PACKAGING MATERIAL

**6. GLASS :** Now a day glass container has been also used for packaging. It has following advantages:

- act as strong barrier to moisture, gases, odours and micro-organisms.
- do not react with food products.
- suitable for heat processing when hermetically sealed
- glass are re-useable and recyclable
- they are transparent to display the contents
- they are rigid, to allow stacking without container damage.



# PACKAGING MACHINES



# 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 reinfection is prevented; that is, so that they are hermetically sealed.

- **Active packaging are used for :**

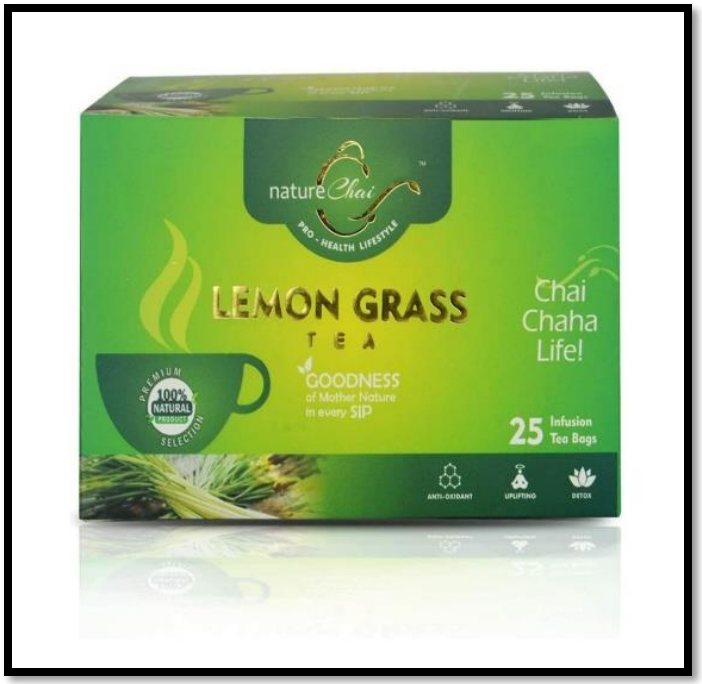
✓ To take advantage of high temperature.

✓ 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 through distinctive branding, as well as facilitating identification at check-outs through the Universal Product Code (UPC).



# 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 aluminium not conforming in chemical composition to IS:20 specification for Cast Aluminium & Aluminium Alloy for utensils or IS:21 specification for Wrought Aluminium and Aluminium Alloy for utensils.

# PACKAGING & LABELING LAWS - FSSAI

- **Labeling should contain following information:**

✓ Name of the food product.

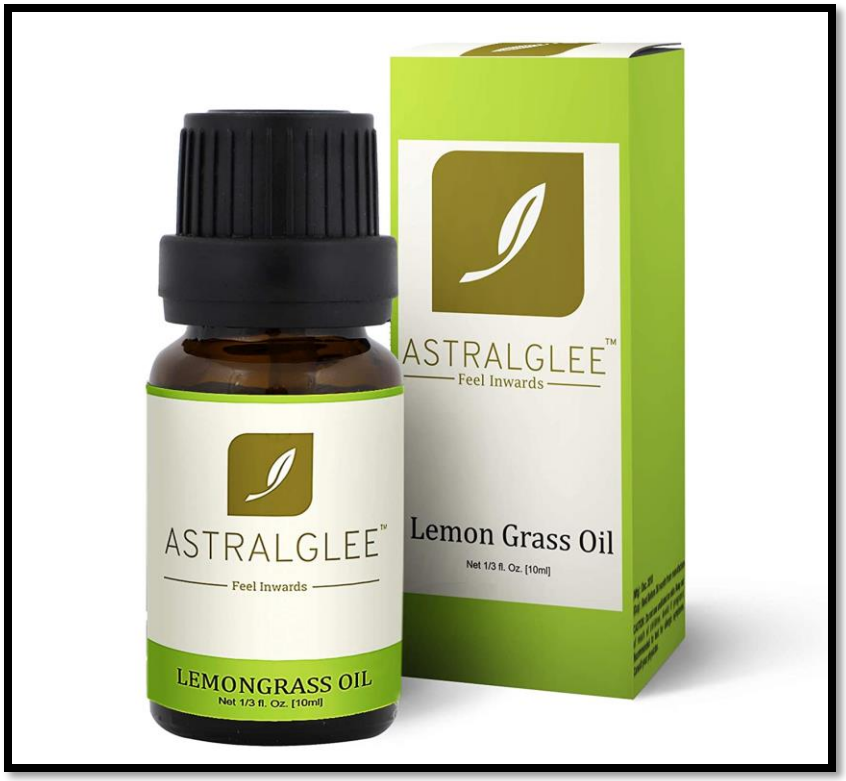
✓ List of ingredients.

✓ Nutritional information.

✓ Declaration of VEG and NON VEG.

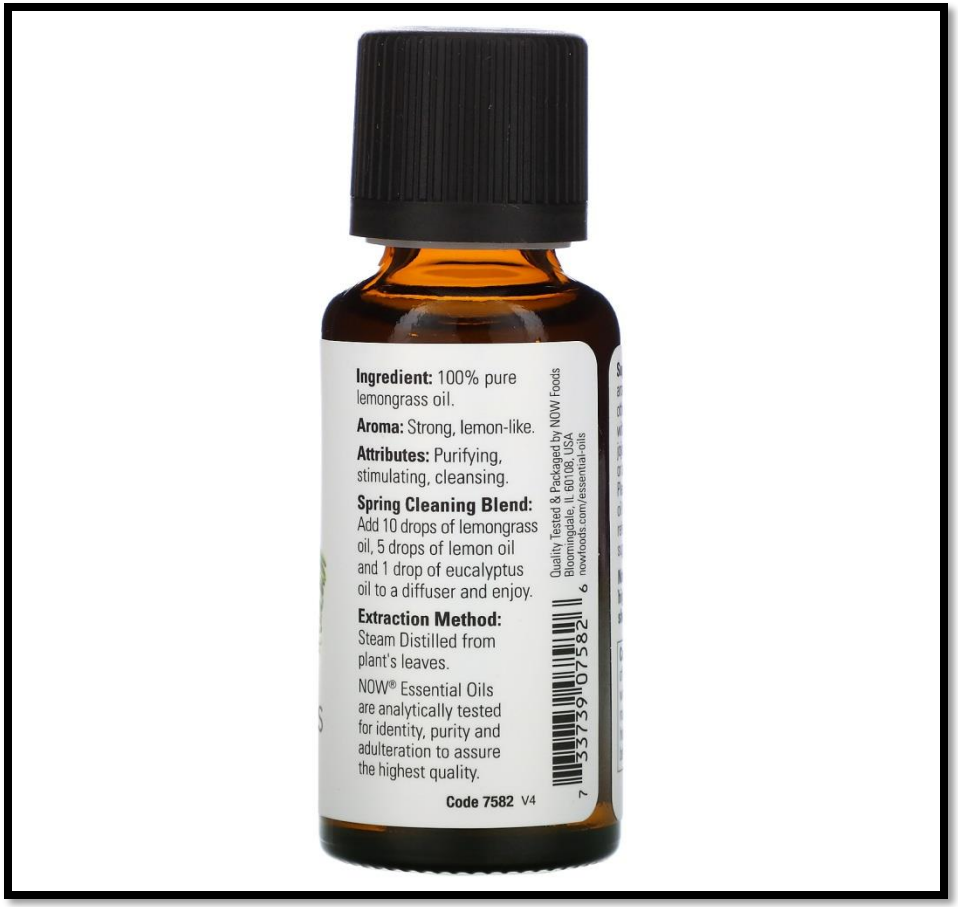
✓ Declaration of added food additives.

✓ Name and address of manufacturer.



# PACKAGING & LABELING LAWS - FSSAI

- ✓ Net quantity
- ✓ Code number
- ✓ Lot number/ Batch number.
- ✓ Date of manufacturing.
- ✓ Best before date
- ✓ Country of origin.
- ✓ Instruction for uses.



# QUALITY CONSIDERATIONS DURING PACKING

Quality control of packed products is the last time the product is checked before reaching the customer.

- ***Documented checking of the packages entails:***

- ✓ Weight of the package
- ✓ Weight of the products.
- ✓ Arrangement of the products.
- ✓ Defects; and Moisture content

# QUALITY CONSIDERATIONS DURING PACKING

❖ ***The surrounding area is also checked:***

✓ Cleanliness of the handling equipment during processing

✓ Calibration of the scales (automatic or manual);

✓ Writing on the packages;

✓ Satisfactory working of the metal detector (installed on every retail packing line);

✓ Repackaging installations and marking; and

✓ Qualification for international standards such as ISO and HACCP


**National Institute of Food Technology and Entrepreneurship and Management**
Ministry of Food Processing Industries
Plot No. 97, Sector-56, HSIIDC, Industrial Estate, Kundli, Sonipat, Haryana-131028

Website: http:www.niftem.ac.in
Email: pmfmecell@niftem.ac.in
Call: 0130-2281089