MINISTRY OF FOOD PROCESSING INDUSTRIES
GOVERNMENT OF INDIA

NIFTEM
KNOWLEDGE • INNOVATION • OUTREACH

PACKAGING OF SUGARCANE PRODUCTS

AATMANIRBHAR BHARAT

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

CONTENT

1. Introduction.
2. Different types of packaging.
3. Equipment and process for packaging.
4. Characteristics of packaging.
5. Effect on quality of product and shelf life.

WHY PACKAGING REQUIRED

1. Easy to carry, labelling, customer appealing, marketing.

2. Avoid physical and microbial cross contamination.

3. Increase shelf life of product.

4. Helps in maintaining the quality of the product.

5. Attractive appearance and consumer acceptance.

6. Also avoids insect or pest penetration in to the product.

METALLIZED PACKED PRODUCTS

1. Metals are chemically reactive and can be readily oxidized.

2. It can form corrosion products with acidic or non compatible chemicals.

3. This may change the quality, taste and appearance of product.

4. Factors affecting rate of corrosion :

(a) Oxygen supply

(b) Temperature

(c) Passivity

METALLIZED PACKED PRODUCTS

Food Cans with enamel (lacquer) coatings are used to protect:

(a)Excessive dissolution of tin

(b)Sulfide staining

(c)Local etchcing

(d)Change in color of pigmented products.

Enamel effectiveness depends on its ability to act as an impermeable barrier to gases, liquids and ions

SELECTION OF METALLIZED PACKED PRODUCTS

Most common metals used for packaging are Steel, Aluminium,Tin and Chromium.

Different alloying elements affects aluminium corrosion behaviour

1. Copper – reduces corrosion resistance.
2. Mangenese – increased corrosion resistance.
3. Magnesium – good corrosion resistance.
4. Chromium – increases corrosion resistance.

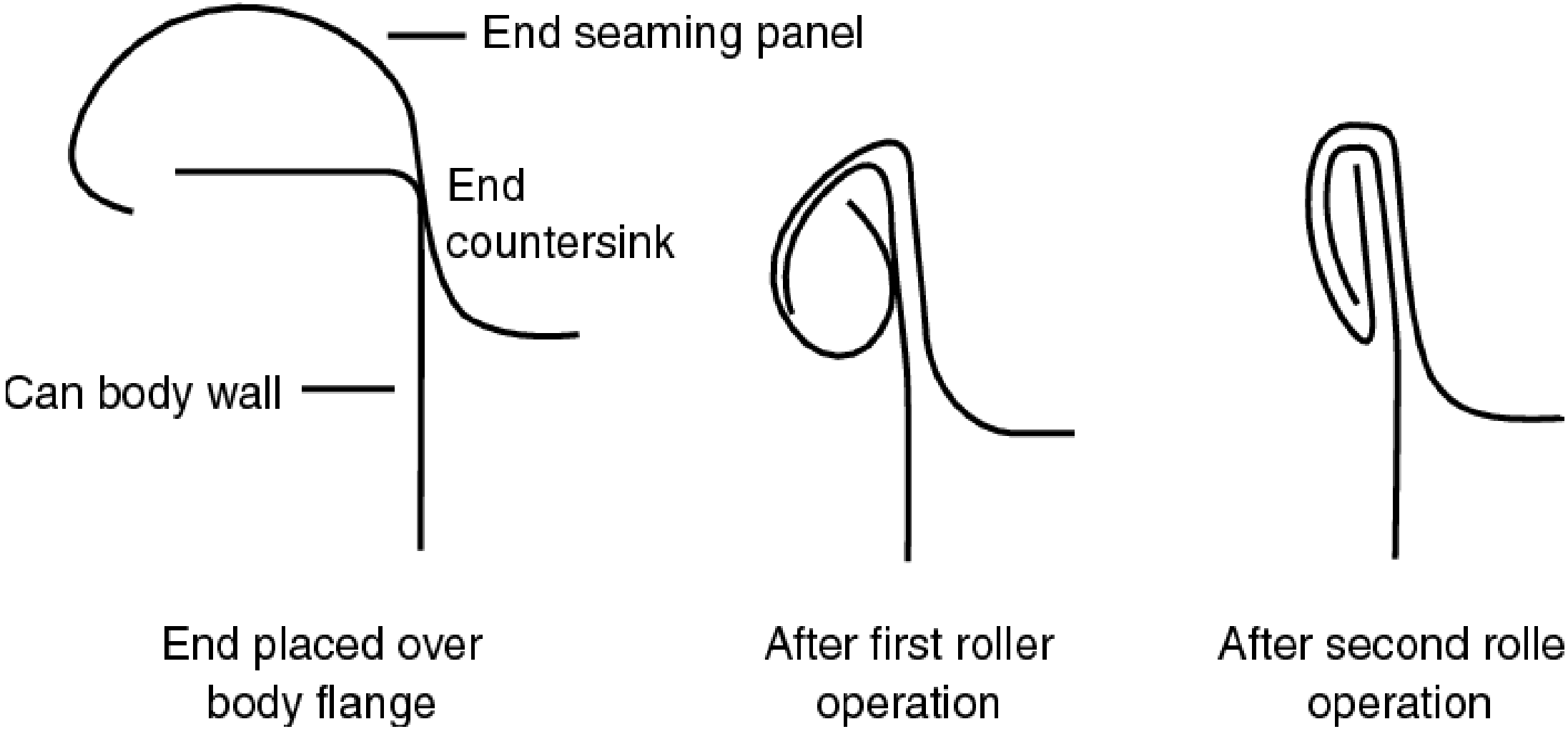
Manganese

Maganesium

Copper

Chromium

CAN SEAMING


End seaming panel
End countersink
Can body wall
End placed over body flange
After first roller operation
After second roller operation

EQUIPMENTS FOR CAN MANUFACTURING AND FILLING

Can making machine

Can filling and seaming equipment

GLASS PACKAGING

Properties of glass used for packaging:

1.Can resist internal pressure as in carbonated beverages.

2.It has high vertical load strength.

3.Glass fragility can be reduced with energy absorbing coating surface treatments.

4.It has good resistance to abrasions and scratches.

5.Can be used at high and low temperatures not suitable for paper or plastics.

PLASTIC PACKAGING

Various types of plastic packaging materials:

1.PET – strong abrasion resistant.

2.LDPE – plastic pouches, squeezable plastic bottles.

3.PVC – plastic bottles, cups.

Plastic bottles/cups are :

(a) aesthetically attractive and easily to open.

(b) Hot fill capable for juices and other liquid packaging.

SHELF LIFE OF PACKAGED PRODUCTS

Shelf life of packaged processed sugarcane juice can be upto 6 months provided proper storage conditioins.

Sugarcane juice after processing can be filled in :

1. Cans.
2. Plastic bottles.
3. Plastic cups.
4. Glass bottles.
5. Tetra packaging.
6. LDPE pouches.

SHELF LIFE OF PACKAGED PRODUCTS

- Sugarcane juice can be dried in powdered form.
- In this way shelf life of sugarcane juice can be increased.
- Sugarcane juice powder can be reconstituted with water to prepare sugarcane juice.
- Tetra packing of juice under maintained asceptic condition while processing and packaging result in good shelf life.

JAGGERY PACKAGING

- Jaggery can be prepared in form of powder, solid or liquid.
- It can be packaged in plastic bags, plastic bottles and glass bottles.
- Packaging increases its shelf life by avoiding moisture absorption and microbial contamination.
- Jaggery is available in many shapes and sizes like cubes etc.
- It can be easily packed in LDPE plastics.

PLASTIC POUCH/BOTTLE FILLING MACHINERY

Bottle filling, capping machine

Form Fill Seal machine

ALCOHOL PACKAGING

- Alcohol is majorly packaged in glass and plastic containers.
- Major content of alcoholic beverages is Ethanol.
- Alcoholic beverages obtained by distillation of alcohol are brandy, gin, whisky cognac, vodka, etc.
- Because of their high alcohol percentages, these liquors are mostly packed in glass bottles.

ALCOHOL PACKAGING

- Wine is sensitive to flavor deterioration by oxygen and light therefore mostly wine packed in amber glass.

- The minimum head space in container help to preserve the flavor.

- The amount of oxygen entered during packaging can lead to degradation of color, appearance and flavor with reduced shelf life.

EQUIPMENTS

Manual whisky bottle crown capping machine

Automatic whisky bottle filling machine

ALCOHOLIC BEVERAGE PACKAGING

- Glass bottles are fragile hence for transportation, it is further packaged in corrugated boxes.
- Shock absorbing material like straw, paper etc are provided below and between bottles.
- The quality and strength of boxed depends on the GSM of paper and no. of flutes present for corrugation.
- These fibre boards or boxes can also a product that is derived from sugarcane industry.

INDUSTRIAL OR LAB GRADE ETHANOL PACKAGING

- Undenatured industrial grade ethanol have strength > 99.7% v/v @ 20 C.
- Denatured fuel ethanol have strength > 95.6 % v/v @ 15 C.
- Lab grade ethanol with purity > 99% if flammable in nature.
- It must be stored in any incompatible material or near heat source.
- It can be stored in 200 kg plastic drums/or small bottles covered
- tightly with lid for industrial or lab use.

SUGAR PACKAGING

Sugar is the main product manufactured from sugarcane.

Different types of sugar available in market are:

	White Sugar
1	Regular or Granulated Sugar
2	Confectioner's or powdered sugar
3	Fruit sugar
4	Baker's special sugar
5	Coarse sugar
6	Superfine sugar
7	Sanding sugar

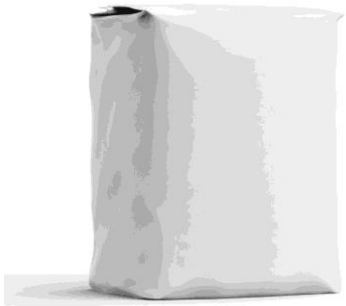
	Brown Sugar
1	Light and Dark brown sugar
2	Turbinado sugar
3	Muscovado sugar
4	Free-flowing brown sugar

	Liquid Sugar
1	Liquid sugar
2	Invert sugar

SUGAR PACKAGING MATERIAL

Sugar can be packed in :

1. Paper bag – water and moisture proof,enviroment friendly
2. Plastic bag – water and moisture proof, attractive.
3. Iron box – tinted tin iron used with good durability, reusability,good sealing strength.



Main property of sugar is it absorbs moisture and form lumps hence packaging material must be a good moisture barrier.

All above materials are good packaging material as per requirement.

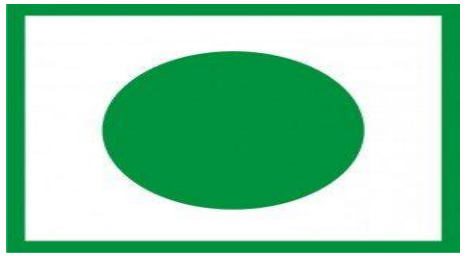
SUGAR PACKAGING EQUIPMENTS

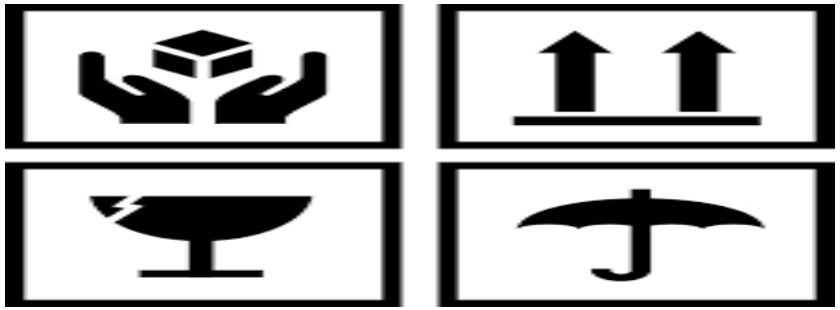
Sugar pouch filling machine

Sugar sachet filling machine

FSSAI GUIDELINES FOR SUGAR PACKAGING

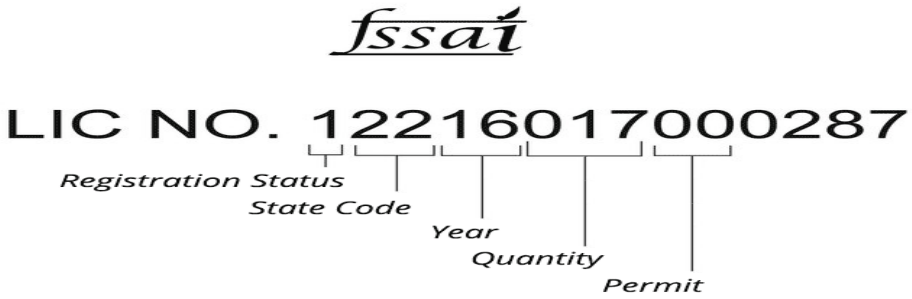
- Label information shall not be false, misleading or deceptive.
- Veg. Food Symbol
- Symbol of Handling
- Brand Name/Logo
- Commodity Name
- Grade
- Method of Preparation
- Manufactured By Declaration located at different places.
- FSSAI Logo





FSSAI GUIDELINES FOR SUGAR PACKAGING CONTD..

- FSSAI License. No
- Net Weight Declaration including Pack Config.
- Manufacturing Date/Packaging Date
- Best before Declaration
- Storage Condition
- Nutritional Information (per 100g per serving size)
- Packed at
- MRP
- Lot No. & Batch No.
- Ingredient List



BASIC GMP REQUIRED

For More details Contact:

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