

PACKAGING OF COSMETICS PRODUCTS

Packaging

It is the art and science of preparing articles for transport, storage, display and use.

It is the process by which the products are suitably placed so that they should retain their effectiveness from time to time of their packaging till they are consumed.

Classification Of Packaging

- **Primary Packaging**

- In direct contact with the product
- Closure which is also part of the primary pack

- **Secondary Packaging:**

- Are additional packaging material that improve the appearance of the product
- Include outer wrappers on labels that do not make direct contact with the product

Primary Function

1. PRESENTATION

Presentation of product should be attractive & eye catching

2. PRESERVATION

It preserves original colours, Quality, flavour etc

Avoid Product spoilage, Health risk.

3. ECONOMY

Packaging of a product should be economy

4. CONVENIENCE

Packaging should be light to handle

5. PROTECTION

increases life span of a product

- Environmental Protection
- Mechanical protection

Secondary Functions

- **CONTAINMENT**

Premeasured , preweighed and then placed in box

- **IDENTIFICATION**

Packaging helps to identify the products easily

- **LABELING**

It helps to promote the sale of goods

- **HANDLING**

When package is light in weight it facilitate easy handling of cargo

Advantages and disadvantages of containers:-

Container type	Purpose	Advantages	Disadvantage
Jars(plastic, glass, ceramic)	Home care -Semi-solid W/O and O/W emulsions <u>-Hydrogels</u>	-Filling easy to take out with fingers, spatula or cotton pads -Decorative	-Unhygienic-contamination during use -O/W products may desiccate
Tubes(plastics, composite materials, <u>aluminium</u>)	Home care -Semi-solid W/O and O/W emulsions <u>-Oleogels</u> <u>-Hydrogels</u>	<u>Aluminium</u> The “one way discharge” from <u>aluminium</u> tubes avoids the penetration of germs	-Non-decorative ointment look -Elastic plastic tubes air and germs penetrate during discharge
Bottles(plastics, glass, ceramics, <u>aluminium</u>)	Home care Beauty, institute products Liquid W/O and O/W emulsion solutions	Variable synthetic material -jet and drop inserts -spray nozzle -frothing caps -pump head with tube glass/rubber <u>Aluminium</u> pressure cylinder	-Requires high microbiological stability -Radiation can penetrate through transparent bottles hence they are not appropriate for sensitive components

<p>Dispensers(plastics, glass)</p>	<p>Home care -Semi-solid emulsions -Hydrogels -Oils, liquid wax</p>	<p>-Hygienic: airless dispenser with double bottom cannot be contaminated from the outside -Airless dispenser can be completely emptied</p>	<p>-Transparent dispenser are not accepted in some countries -Radition can penetrare through transparent dispenser hence they are not appropriate for sensitive components</p>
<p>Sachtes(plastic foils)</p>	<p>Home care Beauty institute products -Enzyme peeling(powder) -Modelages(powder) -Free samples of semi-solid W/O and O/W emulsions</p>	<p>-Hygienic -One off use -Promotion material</p>	<p>-Opened products have to be consumed immediately -Lots of packaging waste</p>

Containers For Primary Packaging

In general, cosmetics and personal-care products are sold in

- Bottles
 - Jars
 - Tubes
 - Sticks
 - Pouches/packets
 - Aerosols
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Material used for packaging:

- **Plastics**
- **Glass**
- **Ceramics**
- **Aluminum**

▶ 1. Glass Packaging:

- ▶ Glass is nonporous and impermeable it does not degrade and is chemically inert. This means it is meant to guard its content from oxygen and moisture, so that the content is in good shape. This is one of the main reasons why glass is used in packaging of many cosmetics.
- ▶ Glass and ceramic are advantageous so far as they are absolutely impermeable for gaseous substance like oxygen and water vapor. Oxygen-sensitive products are filled under protective gas atmosphere hence are packed in glass containers.
- ▶ **Composition of Glass:**
- ▶ Glass is composed principally of silica with varying amount of metal oxides, soda-ash, limestone, and cullet. The sand is almost pure silica, the soda-ash is sodium carbonate, and the limestone, calcium carbonate. Cullet is broken glass that is mixed with the batch and acts as a fusion agent for the entire mixture. The composition of glass varies and is usually adjusted for specific purposes. The most common cations found in pharmaceutical glassware are silicon, aluminum, boron, sodium, potassium, calcium, magnesium, zinc, and barium. The only anion of consequence is oxygen.

Types Of Glass :-

- ▶ Type I-Borosilicate Glass
- ▶ Type II—Treated Soda-Lime Glass
- ▶ Type III-regular soda-lime glass
- ▶ Type NP- General-purpose Soda-lime Glass

Type I–Borosilicate Glass

Borosilicate glass is a highly resistant. In this type of glass a substantial part of the alkali and earth cations are replaced by boron and/or aluminum and zinc. It is more chemically inert than the soda-lime glass. The addition of approximately 6% boron to form type I borosilicate glass reduces the leaching action.

▶ **Type II—Treated Soda-Lime Glass:-**

When glassware is stored for several months, especially in a damp atmosphere or with extreme temperature variations, the wetting of the surface by condensed moisture (condensation) results in salts being dissolved out of the glass. This is called "bloom" or "weathering," and in its early stages, it gives the appearance of fine crystals on the glass. At this stage, these salts can be washed off with water or acid. Type II containers are made of commercial soda-lime glass that has been de-alkalized, or treated to remove surface alkali. The de-alkalizing process is known as "sulfur treatment" and virtually prevents "weathering" of empty bottles.

- ▶ Type III-regular soda-lime glass:-
Containers are untreated and made up of commercial soda-lime glass of average or better than average chemical resistant.
- ▶ Type NP- General-purpose Soda-lime Glass:-
Containers made of soda lime glass are supplied for non parenteral products, those intended for oral or topical use.

PLASTIC PACKAGING :-

Plastic containers for pharmaceutical products are primarily made from the following polymers : polyethylene, polymethyl methacrylate, polyethylene terephthalate, polytrifluoroethylene, the amino formaldehydes, and polyamides. Plastic containers consist of one or more polymers together with certain additives. Additives may consist of antioxidants, antistatic agents, colors, impact modifiers, lubricants, plasticizers, and stabilizers.

Advantages of plastic containers:-

- *Low in cost
- *Light in weight
- *Durable
- * Pleasant to touch
- * Odorless and inert to most chemicals
- * Unbreakable
- * Able to retain their shape throughout their use.

Disadvantage of plastic container:-

- *Plastics appear to have certain disadvantage like interaction, adsorption, absorption lightness and hence poor physical stability.
- *Stress cracking, a phenomenon related to low density polythene and certain stress cracking agents such as wetting agents, detergents and some volatile oils
- *Crazing, a surface reticulation which can occur particularly with polystyrene and chemical substances
- *Poor impact resistance both polystyrene and PVC have poor resistance⁸.
- *Poor key of print certain plastics, such as the poly olefins need pre treating before ink will key.

▶ **Types of plastic**

Two main types

- ▶ Thermoplastics Plastic
- ▶ Thermosetting plastic
- ▶ **Thermoplastics:** These are made up of lines of molecules with few cross linkages, this allows them to soften when heated and to be bent in variety of shapes and forms.
- ▶ Ex: Polyethylene, polypropylene, polyesters.

Thermosetting : These are made up from long chains of molecules that are cross linked, they have very rigid structure. once heated they can be moulded, shaped into shapes but after setting they cannot be reheated.

Ex: silicone, epoxy

- ▶ The most common type of plastic used for cosmetic containers are Polypropylene plastics
- ▶ . However these can also come in a more affordable PET(polyethylene terephthalate) plastic or a higher-end acrylic plastic. Acrylic plastic is usually clear, and resembles glass.

- ▶ **METAL CONTAINERS:–**

The collapsible metal tube is an attractive container that permits controlled amounts to be dispensed easily, with good re closure and adequate environmental protection to the product. The risk of contamination of the portion remaining in the tube is minimal, because the tube does not "suck back." It is light in weight and unbreakable and it lends itself to high-speed automatic filling operations. The ductile metals used for collapsible tubes are tin (15%), aluminum (60%), and lead (25%).