

Packing of Pharmaceuticals:

Desirable features of a container: types of containers

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INTRODUCTION

- Packaging is the science, art and technology of enclosing or protecting products for distribution, storage, sale, and use.
- Packaging also refers to the process of design, evaluation, and production of packages.
- Pharmaceutical packaging can be defined as the economical means of providing presentation, protection, identification , information, convenience ,compliance , integrity and stability of the product .

FUNCTIONS OF PACKAGING

- **Product Identification:-**

Packaging greatly helps in identification of products.

- **Product Protection:-**

Packaging protects the contents of a product from spoilage, breakage, leakage, etc.

- **Facilitating the use of product:-**

Packaging should be convenience to open, handle and use for the consumers.

- **Product Promotion:-**

Packaging is also used for promotional and attracting the attention of the people while purchasing.

- 5. Marketing:** The packaging and labels can be used by marketers to encourage potential buyers to purchase the product.
- 6. Convenience:** Packages can have features that add convenience in distribution, handling, stacking, display, sale, opening, re-closing, use, dispensing, reuse, recycling, and ease of disposal.
- 7. Barrier protection:** A barrier from oxygen, water vapour, dust, etc., is often required. Permeation is a critical factor in design. Some packages contain desiccants or oxygen absorbency to help extend shelf life. Keeping the contents clean, fresh, sterile and safe for the intended shelf life is a primary function.
- 8. Security:** Packaging can play an important role in reducing the security risks of shipment. Packages can be made with improved tamper resistance to deter tampering and also can have tamper-evident features to help indicate tampering. Packages can be engineered to help reduce the risks of package pilferage.

TYPES OF PACKAGING

Primary packaging- is the material that first envelops the product and hold it. This usually is the smallest unit of distribution or use.

Ex. Aerosol spray can, blister packs, bottle



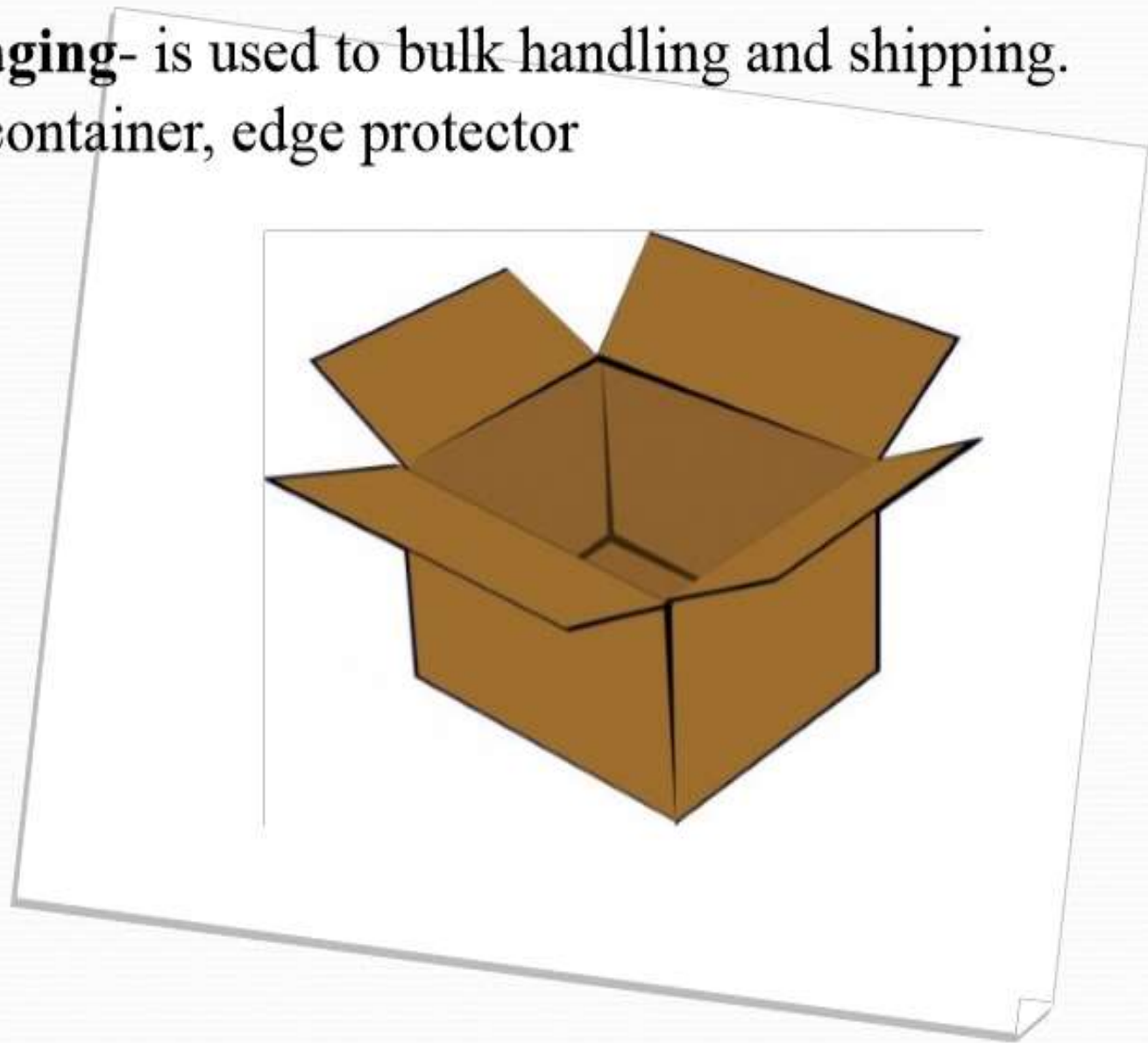
Secondary packaging -

Is outside the primary packaging perhaps used to group primary package together.

Ex. Boxes, cartons



Tertiary packaging- is used to bulk handling and shipping.
Ex. Barrel, container, edge protector



CHARACTERISTICS OF PACKAGING MATERIAL

The material selected must have the following characteristics:

- Must meet tamper-resistance requirements
- Must be FDA approved
- Must be non-toxic
- Must not impart odor/taste to the product
- Must not reactive with the product
- They must protect the preparation from environmental conditions

Container

- A Pharmaceutical container is a device that holds the drug and may be in direct contact with product.

Closures

- It is a device which protects the drug (or) drug product by preventing the entry of air, moisture, particulate matter, and microorganisms etc., thereby keeping the product in a safe condition and also assists in proper use & of the drug.

Desirable Features of Containers and closures/ideal characteristics of Containers and closures

- It must protect the dosage form from environmental conditions
- It must be non-reactive with the product
- It should not impart taste and odor to the product
- It must be non-toxic
- It must meet applicable tamper resistant requirement
- It must comply with the legal requirements
- It must preserve the product up to its shelf life
- It must be economical

- It must not allow leakage, spoilage or permeation of the product
- It must not absorb or adsorb the drug content of the product
- It must withstand pressure during handling, storage and transport
- It must provide an acceptable presentation for the product and at the same time maintain identification and information

Types of containers

- **Well – closed containers:**

- A well-closed container protects the contents from loss during transportation, handling, storage or sale.

- **Single dose containers :**

- These containers are used to supply only one of medicament and hold generally parenteral products. E.g. ampoules and vials

- **Multi dose containers:**

- These containers allow the withdrawal of dose at various intervals without changing the strength, quality or purity of remaining portion. these containers hold more than one dose and are used for injectable. E.g. vials

- **Light-resistant containers:**

- These containers protect the medicament from harmful effects of light.
- These containers are used to store those medicaments which are photo-sensitive.

- **Air -tight containers:**

- These are also called hermetic containers.
- These containers have air-tight sealing or closing.
- These containers protect the products from dust, moisture and air.

➤ Where as air-tight sealed containers are used for injectable, air-tight closed containers are meant for the storage of other products.

• **Aerosol containers:**

➤ These containers are used to hold aerosol products.

➤ These containers have adequate mechanical strength in order to bear the pressure of aerosol packing.