

**Industrial Pharmacy/Fifth
Stage
Lec:2**

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Oral Solid Dosage Forms(Tablets)



Stages of Tablet Formation

- The tablets are prepared by directing particles into close proximity by powder compression.
- The particles cohere into porous, solid specimen of defined geometry.
- The compression occurs in a die by the action of two punches.
- The upper and the lower punches is the source of the applied force.

Stages of Tablet Formation

- Powder **compression** is the reduction in the volume of powder owing to the application of a force.
- Bonds are formed between particles which provide coherence to the powder and compact is formed.
- **Compaction** is formation of solid specimen of defined geometry due to compression.

Stages of Tablet Formation

➤ The process of tableting can be divided into three stages:

Die Filling

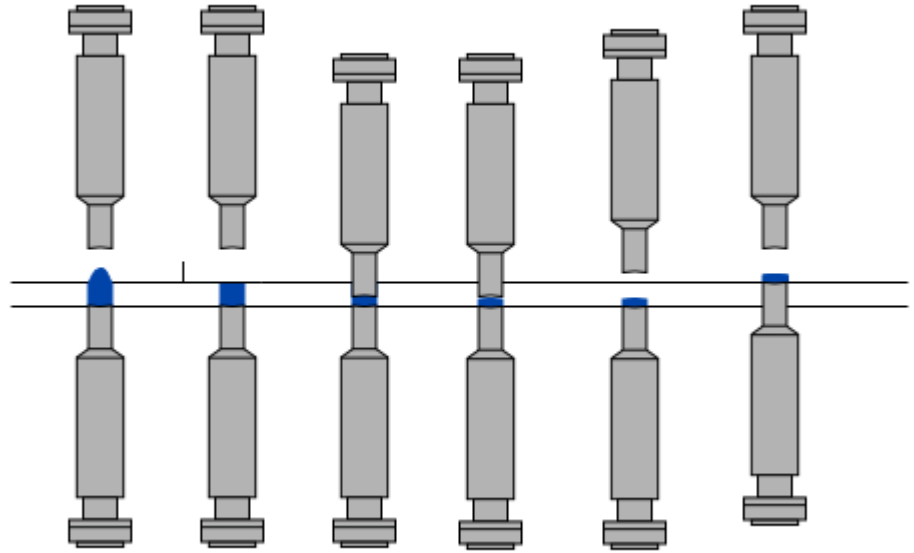
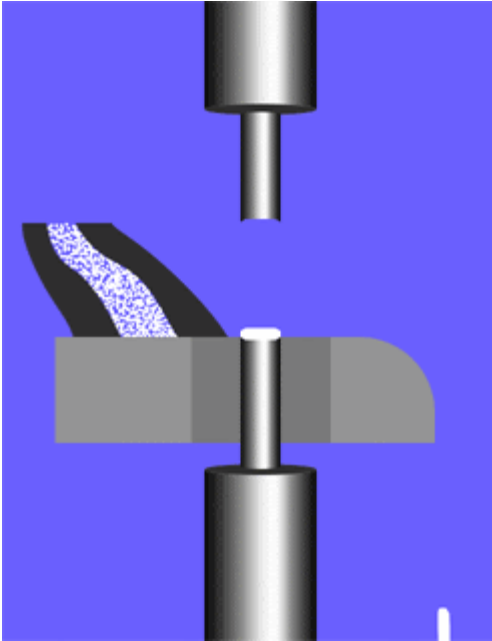
By the effect of gravitational flow of the powder from hopper to die

Tablet Formation

The upper punch descends and enter the die, the powder compressed and the tablet formed, the lower punch can be stationary or move upward ,then the upper punch leaves the powder

Tablet Ejection

The lower punch rises until its tip reach the level of the top of the die,then the tablet removed from die



Types of Tablets

Oral tablets for ingestion

Compressed tablets

Sugar coated

Film coated

Enteric coated

Multiple compressed

Controlled released tablets

Chewable tablets

Tablets used in oral cavity

Buccal tablets

Sublingual tablets

Lozenges

Tablets administered by other routes

Vaginal Tablets

Implantation tablets

Tablets used to prepare solutions

Effervescent tablets

Dispensing tablets

Hypodermic tablets

Tablet triturates

Oral Tablets for Ingestion

1-Compressed tablets:

- These tablets are formed by compression and in their simplest form, **contain no special coating**.
- They are made from **powdered, crystalline, or granular materials, alone or in combination** with binders, disintegrants, controlled-release polymers, lubricants, diluents, and in many cases colorants.
- The vast majority of tablets commercialized today are compressed tablets, either in an **uncoated or coated state**.
- Most of these tablets are intended to **provide rapid disintegration and release to induce** either local or systemic effect.

Oral Tablets for Ingestion

2- Sugar Coated Tablets:

- These are compressed tablets surrounded by a **sugar coating**.
- Such coatings may be colored and are beneficial in covering up drug substances possessing **objectionable tastes or odors** and in **protecting materials sensitive to oxidation**.
- in addition it improve the **appearance** of the compressed tablet

Oral Tablets for Ingestion

- Sugar coated tablets has many demerits:
 - 1-Sugar coated tablets easily mistaken as a candy
 - 2- Time and expertise require in the coating process
 - 3- Sugar coating may add 50% to the weight and bulk of the uncoated tablets.

- Water soluble polymers are often incorporated in sugar solution.
- Automated spray coating equipment is employed, with high drying efficiency coating pan.
- The result is elastic and mechanically stable sugar coat over the tablet.



Oral Tablets for Ingestion

3-Film Coated Tablets:

- These are compressed tablets that are covered with a thin layer or film of a water-soluble material.
- A number of polymeric substances with film-forming properties may be used.
- Film coating imparts the same general characteristics as sugar coating with the added advantage of a greatly reduced time period required for the coating operation, besides being more durable and less bulky.

Plasticizer?????



- The film coat is usually composed from **water soluble polymer and plasticizer** delivered as solution.
- Aqueous solution of polymers such as **HPMC and HPC provide immediate release**, while colloidal dispersion of **EC** may provide **sustained release**.
- It is difficult to obtain film coat match the elegance and appearance of sugar coat

Oral Tablets for Ingestion

4- Enteric Coated Tablets(delayed action)

- These are compressed tablets coated with substances that resist dissolution in gastric fluid but disintegrate in the intestine
- Enteric coatings can be used for tablets containing drug substances that are inactivated or destroyed in the stomach, for those that irritate the mucosa or as a means of delayed release of the medication(antibiotics with high concentration undiluted)

Oral Tablets for Ingestion

- The used polymer for enteric coating are natural or synthetic containing mixed acid functionality and acid ester functionality.
- These polymer being insoluble at low pH, once the pH rise at intestine, they start to hydrate and the film rupture and dissolve.
- Example on such polymers cellulose acetate phthalate, hydroxypropyl methyl cellulose phthalate , polyvinyl acetate phthalate



**Thanks for
Listening**