

Introduction to Solid Oral Dosage Forms Types: Tablets, Capsules, Lozenges, Pastilles, Powders, Granules Advantages: Convenient, stable, accurate dosing, taste masking, potential for controlled release Disadvantages: Difficult to swallow, unsuitable for liquid drugs	Quality Control (QC) Official tests (BP/EP) For all tablets: Uniformity of content Uncoated tablets: Weight uniformity, disintegration, dissolution Unofficial tests Hardness, friability	Tablet coatings (cont) Types: Sugar coating: Multistage, increases weight, glossy finish Film coating: Popular, automated, controlled release capable, minimal weight gain Press coating: Rare, separates incompatible ingredients	Tablet Manufacturing – Moist Granulation Mixing with Diluents: Lactose, cellulose, calcium salts, starches, sugars Blending with Binder: Water, methylcellulose, starch paste, gelatin, etc. Screening: Mesh size affects granule size Drying: Tray/fluid bed dryer; granules re-screened post-drying
Alternative Tablet Manufacturing Methods Pre-compression: Used when moisture/heat-sensitive; uses slugs or roller compaction Direct Compression: Simple and cost-effective; uses flowable drug/diluent mix (e.g. Avicel, Zeparox)	Tablets Definition: Solid mass compacted using a tablet machine: typically 50-500mg Properties: Strong, Bioavailable, stable, elegant, uniform in weight and content Types: Standard, Soluble/Dispersible, Effervescent, Chewable, Buccal, Sublingual, Enteric-coated, Controlled release	QC test details Disintegration: 6 tubes in 37°C bath; usually ≤15 minutes Dissolution: Basket/paddle/cell method; ≥70–75% drug released in 45 mins Hardness (Crushing): Measured force to break tablet Friability: Weight loss after 100 rotations (≤1% allowed)	Additives: Lubricants: Stearates, PEGs, sodium benzoate Glidants: Talc, fumed silica Disintegrants: Starch, alginic acid, cellulose
Capsule vs Tablet decision factors Company policy, market research, competitor products Equipment, production costs, unit dose, dissolution rate, drug stability	Tablet coatings Purposes: Protect drug, taste/appearance, ID, stability, controlled release		



Capsule Manufacturing		Tablet compression		Capsules	
Hard capsules:	Filled with powders, granules, tablets, pastes Must not react with gelatin or leak	Stages:	Lower punch creates cavity → powder fills → upper punch compresses → tablet ejected	Shell:	Gelatin (Type A – acid hydrolysis; Type B – base hydrolysis)
Softgels:	Filled, formed, sealed in one go using rotary die machine Fill is sealed between two gelatin ribbons	Machines:	Single stroke press: Small-- scale Rotary press: Large-- scale, 10,000+ tablets/min	Types:	Hard capsules: Two-piece, filled with dry/semi--solid materials Soft capsules (softgels): One-piece, filled with non-aqueous liquids
Specialised Solid Forms		Issues:	Picking, sticking, capping, lamination, weight variation, mottling		
Lozenges:	Local effect; slow dissolve in mouth, no disintegrant	Functional Coatings			
Chewables:	Rapid breakdown in mouth, no disintegrant	Enteric Coating:	pH-dependent solubility; protects from stomach acid		
Dispersible/Soluble Tablets:	Dissolve/disperse in water; water-compatible disintegrant required	Controlled release:	Diffusion-controlled, Erosion-based, Osmotic systems		
Effervescent Tablets:	Rapid disintegration via fizz; no standard lubricants				
Sublingual/Buccal Tablets:	Dissolve in mouth for fast absorption; no disintegration needed				