Pharma Solutions

# TABLETS

## Dosage forms

About two-thirds of all medications are dispensed as oral solid dosage forms (OSDFs), and half of these OSDFs are tablets. While they look simple and elegant, tablets are complex formulations of active pharmaceutical ingredient(s), binders like microcrystalline cellulose, superdisintegrants like croscarmellose, flow aids, coatings and lubricants. Tablets can also be designed with rate-modifying or solubility enhancemening polymers, such as hypromellose or polyethylene oxide. Tablets may also be coated with a soluble low-viscosity film-forming polymer, like hypromellose, or a rate-modifying film-forming polymer, such as ethylcellulose.

### Enabling Technologies

**Avicel®** microcrystalline cellulose and co-processed materials are highly functional, reliable, flexible tablet binders offering outstanding properties, such as compression, binding, wetting and flow.

**Ac-Di-Sol®** croscarmellose sodium is a premium superdisintegrant that effectively disintegrates tablets quickly at low use level.

**METHOCEL™** water-soluble cellulose ethers are versatile excipients broadly used in tablet coatings, as binders in wet granulation or as matrix formers in controlled release hydrophilic matrices. Tailored METHOCEL™ grades providing productivity improvements are available, such as METHOCEL™ VLV for binders and coating or METHOCEL™ DC2 for direct compression.

**ETHOCEL™** Premium FP grades of ethylcellulose resins offer versatility in drug release rates and produce hard tablets with low friability. ETHOCEL™ can also be used as a tablet coating to provide sustained release and mask the taste of drugs.

**POLYOX™** can be used to create alternate drug release profiles as matrix tablets or in the form of osmotic pump tablets. Osmotic pump tablets produce a highly desirable linear drug release profile which is resistant to food effects. Heat curing of POLYOX™ based tablets can produce tablets which are highly resistant to crushing, a feature which can be useful for patient compliance.

**Gelcarin®** and **Viscarin®** provide near instant gelation to form a hydrogel barrier around the tablet and enable a near zero-order release profile.

**Protanal®** and **Manucol®** sodium alginate utilize a pH-controlled release machanism that is uniquely suited for use as a modified release matrix in drugs with high solubility at low pH.

**Alubra®** sodium stearyl fumarate provides excellent lubrication and reduced blending sensitivity along with improved tablet hardness and disintegration time.

**Product Recommendations***

| Application | Recommended Products |
|---|---|
| Tablet Binding | Avicel® PH-101, 103, 113, 102, 112, 200, 200LM, 105<br>Avicel® SMCC, DG, HFE, CE-15 |
| Controlled Release Hydrophobic Matrices | METHOCEL™ K100LV, K4M, K15M, K100M, K200M, E4M, E10M (PRM or PRM CR) METHOCEL™ K100 LV PRM DC2, K4M PRM DC2, K100M DC2<br>POLYOX™ WSR-205, 1105, N12K, N60K, 301, 303, Coagulant<br>Protanal® CR8133, CR8223<br>Manucol® LKX |
| Osmotic Pump Tablets | POLYOX™ N10, N80, WSR Coagulant, WSR-301, WSR-303 |
| Immediate Release Coating | METHOCEL™ E5 PRM LV, METHOCEL™ E6 PRM LV, and METHOCEL™ E6 PRM LV, METHOCEL™ VLV |
| Controlled Release Coating | ETHOCEL™ STD 4, 7, 10, 20, 45 or 100 PRM (Solvent Film Coating)<br>ETHOCEL™ HP (Dry Powder Coating)<br>Aquacoat® ECD30 |
| Taste-Masking | AMBERLITE™ IRP64, IRP69, DUOLITE™ AP143<br>ETHOCEL™ STD 4, 7, 10 or 20 PRM<br>Aquacoat® ECD (Aqueous Coating) |
| Immediate Release Disintegration | Ac-Di-Sol® SD-711, Ac-Di-Sol® SDW-802 |
| Lubrication | Alubra® PG-100, PG-30 |
| Oral Dispersible Tablets | Ac-Di-Sol® SD-711, Ac-Di-Sol® SDW-802 |
| Chewable Tablets | Avicel® CE-15 |

* Examples only and not representative of a complete list of recommended products or benefits

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