Theophylline Direct Compression

Summary

Theophylline is an antiasthmatic agent, cardiac stimulant, and diuretic. It is used to reduce the frequency and severity of breathing problems in people with asthma, emphysema, bronchitis, and other pulmonary disorders. It works by relaxing the smooth muscle tissue in the bronchial passages that go into bronchospasm, thus widening the constricted airways. It is available as a prescription drug product; small quantities are found in some herbal teas as well. Dosages commonly range from 50 to 300 mg per unit.

Formulation

<table>
<thead>
<tr>
<th>Excipient</th>
<th>Active content [mg]</th>
<th>mg/tablet</th>
<th>Contribution [%]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theophylline</td>
<td>100.0</td>
<td>100.0</td>
<td>55.5</td>
</tr>
<tr>
<td>VIVAPUR® 102 (Microcrystalline Cellulose)</td>
<td>72.0</td>
<td>40.0</td>
<td></td>
</tr>
<tr>
<td>VIVASTAR® P (Sodium Starch Glycolate)</td>
<td>7.2</td>
<td>4.0</td>
<td></td>
</tr>
<tr>
<td>Magnesium Stearate</td>
<td>0.8</td>
<td>0.5</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>180.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Procedure

Blending:
All excipients, except Magnesium Stearate, were blended for 15 minutes. Afterwards Magnesium Stearate was added to the blend and mixed for an additional 5 minutes. The powder mixture was ready for direct compression.

Equipment:
- Tablet Press: Korsch EK 0 eccentric press, 7 mm punch, biplane
- Turbula Mixer: Type T2A
- Hardness Tester: Pharmatest PTB 311
- Disintegration Tester: ERWEKA ZT 3
- Dissolution Tester: Pharmatest PTW II
- Spectrophotometer: Shimadzu UV-2101 PC

Tablet Characteristics

- Compaction force: 18 kN
- Tablet diameter: 7 mm
- Tablet weight: 180 mg
- Crushing strength: 75 N
- Disintegration time: 10 s

Disclaimer: The information provided is based on thorough research and is believed to be completely reliable. Application suggestions are given to assist our customers, but are for guidance only. Circumstances in which our material is used vary and are beyond our control. Therefore, we cannot assume any responsibility for risks or liabilities, which may result from the use of this technical advice.