

A New Brittle Tableting Excipient for Direct Compression and Dry Granulation with Enormous Hardness Yield

Veronika Hagelstein¹, Markus Gerhart² and Karl G. Wagner¹

¹ Department of Pharmaceutical Technology and Biopharmaceutics, University of Bonn, Gerhard-Domagk-Str. 3, D-53121 Bonn, Germany

² Jungbunzlauer Ladenburg GmbH, Dr. Albert-Reimann-Str. 18, D-68526 Ladenburg, Germany

- Plastic materials: harder tablets, strain-rate sensitive
- Brittle materials: weaker tablets, strain-rate insensitive

Tricalcium citrate – a brittle material

DIRECT COMPRESSION

- 9 mm round concave tooling, automatic die filling
- Styl'One Evolution (Romaco Kilian, Germany)

Pronounced tableability

- Fette 102i (Fette Compacting, Germany)

No speed and lubrication sensitivity

DRY GRANULATION

- GMP-Polygran Macro-Pactor (Gerteis, Switzerland)
- 10 cm power-grip rolls, pocket granulator, square-wire sieve
- Fette 102i (see direct compression), high tableting speed

Hardly any work hardening effect

TRICALCIUM CITRATE:

- Brittle deformation behaviour
- Pronounced tablet hardness – still fast disintegration
- Unaffected by tableting speed and lubrication
- Hardly any work hardening effect during dry granulation