

Abstract

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Title of the Diploma Thesis: A study of tableting materials and tablets with the combination of microcrystalline cellulose and mannitol for orally disintegrating tablets

This thesis compares co-processed dry binder Avicel[®] HFE-102 containing 90 % microcrystalline cellulose and 10 % mannitol with a physical mixture of related dry binders, microcrystalline cellulose (Avicel[®] PH-102) and mannitol (Pearlitol[®] 100SD) in the ratio of 9:1.

Flow properties, compressibility, lubricant sensitivity, tensile strength and disintegration time of tablets are evaluated. Compressibility is evaluated by means of the energy profile of compression process, and lubricant sensitivity by means of the lubricant sensitivity ratio. The results are also compared with the microcrystalline cellulose for direct compression Avicel[®] PH-102 alone.

The flow properties of the co-processed dry binder Avicel[®] HFE-102 alone and the physical mixture were comparable. Avicel[®] HFE-102 showed higher values of the energy of plastic deformation, tensile strength of tablets, and a markedly lower lubricant sensitivity than the physical mixture of dry binders. Tablets with the co-processed excipient Avicel[®] HFE-102 showed short disintegration time, which is suitable for orally dispersible tablets.