Abstract

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Title of the Diploma Thesis:	A study of tableting materials and tablets with the retarding component containing hypromellose and carmellose sodium

The thesis deals with the study of compressibility of directly compressible tableting materials containing coprocessed dry binders MicroceLac® 100 and Prosolv® SMCC 90 in combination with the retarding component CompactCel® SR, which is a mixture of hypromellose and carmellose sodium. The tested concentrations of the retarding component were 10 %, 20 % and 30 %. The formulations also contained salicylic acid as a model drug at concentration of 25 % and sodium stearyl fumarate as a lubricant at concentration of 1%. Flow properties, specifically fowability, apparent volumes and densities were evaluated at the tableting materials. During tablet compression, compressibility was evaluated using the energy profile of the compression process. The tested tablet parameters were tensile strength, friability, disintegration and drug dissolution.

Formulations with MicroceLac® 100 showed better flow properties. The addition of a retarding component worsened the flow properties. The values of total compression energy, plastic deformation energy and plasticity were higher in the case of tablets with Prosolv® SMCC 90. Due to the addition of the retarding component they decreased, but in the case of MicroceLac® 100 they increased. The same dependence applied to the tensile strength of the tablets. Tablets with Prosolv® SMCC 90 showed lower values of friability than tablets with MicroceLac® 100. Drug dissolution from tablets decreased with increasing concentration of retarding component and was faster for MicroceLac® 100 formulations, except for the 10% retardant concentration.