

ABSTRACT

The thesis studied tensile strength, disintegration time of tablets and energy profile of compression of agglomerated lactose **Tabletose[®] 80** and of granulated lactose **SuperTab[®] 30GR**. Tested parameters were studied depending on compression force, addition of two concentrations of the lubricant magnesium stearate (0.5 and 1%) and 25% microcrystalline cellulose **Microcel[®] MC-200**. The tablets were compressed using the material testing machine T1 - FRO 50 TH.A1K Zwick/Roell. Used compression forces were 11, 13 and 15 kN, in the case of mixtures with **Microcel[®] MC-200** 11 kN.

Tensile strength of tablets increased with compression force at both lactoses and it was higher in the case of mixtures with **SuperTab[®] 30GR**. Magnesium stearate decreased the tensile strength of tablets from **Tabletose[®] 80** for all compression forces. Addition **Microcel[®] MC-200** increased the tensile strength of tablets from both lactoses, more in the case of **Tabletose[®] 80**. Disintegration time of tablets increased with compression force. Higher concentrations of magnesium stearate in tablets increased disintegration time. Comparison of disintegration time of tablets from both lactoses depended on concentration of magnesium stearate. Addition of **Microcel[®] MC-200** significantly shortened disintegration time of tablets in both lactoses. The maximal energy increased with compression force, it was higher for **SuperTab[®] 30GR**. It was primarily due to the energy of friction and energy accumulated by the tablet after compaction. **SuperTab[®] 30GR** showed higher values of plasticity.