1. ABSTRACT

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Title of Thesis: The influence of the solution concentration and drying temperature on the properties of spray-dried lactose

In this work, the influence of the concentration of the solution and the drying temperature on the properties of the spray-dried lactose was evaluated. Measurement was performed with three different concentrations of lactose: 15 %, 20 % and 25 %. These solutions were spray-dried at 170 ° C, 180 ° C and 190 ° C.

The spray drying method was used and the subsequent particle analysis was performed by using an optical microscope and DSC.

The results showed that the number of particles smaller than 2.5 μm was reduced in comparation with the starting material (D-lactose monohydrate), and on the contrary, the number of particles in higher size classes increased. The particles have a sphericity and a shape factor equal to 1, so they have a smooth surface and they are round, which also differs from irregular particles of the starting material.

The DSC method obtained by thermograms characterizes the thermal changes occurring in the sample during its heating. The glass transition, crystallization, dehydration and melting point values of α-lactose were recorded.