

ABSTRACT

Charles University in Prague, Faculty of Pharmacy in Hradec Králové

Department of: Pharmaceutical Technology

Consultant: Doc. PharmDr. Zdeňka Šklubalová Ph.D.

Student: Ivana Ledvinová

Title of Thesis: Determination of the compressibility of ascorbic acid using stress relaxation test and force-displacement rekord

This thesis deals with the determination of compressibility of ascorbic acid. Test force-displacement record and stress relaxation test were used for a description of the compression process. Viscoelastic properties of ascorbic acid are evaluated based on parameters obtained from these two methods. Stability of ascorbic acid during compression process was also evaluated. The method of differential scanning calorimetry (DSC) was used for this evaluation.

The tablets for force-displacement record were compressed by maximal compression forces of 5, 10, 15, 20, 25, 30, 35, and 40 kN. For the stress relaxation test were compression forces of 5, 10 and 15 kN. The tablets compressed using force-displacement record were used as samples for DSC method. The purpose of the measurement was to determine possible changes in the structure of ascorbic acid caused by different compression forces. From the obtained values can be concluded that structural changes or decomposition of ascorbic acid does not occur. With increasing compression force the values of the elastic interactions among particles and subsequent plasticity of stress relaxation test are increased. The parameters from force-displacement record are also increased.