

SYNTHESIS AND OFFICIAL ANALYSIS OF CALCIUM LACTATE PENTAHYDRATE

Calcium lactate is an antioxidant synergist, which has an antimicrobial effect, inhibits the growth of *Staphylococcus aureus*, *E-coli*, lactic acid bacteria, *Salmonella*, *Clostridium Botulinum*, *Listeria* pathogens. In cosmetics calcium lactate solution is used to plasticize alginate masks and for the production of gentle whitening toothpastes.

The purpose of this work is development of synthesis method and quality control of calcium lactate salt in accordance with the requirements of a private pharmacopeia article.

The preparation should consist in checking the quality of the feedstock. In particular during storage, lactic acid undergoes esterification, giving lactoylactic acid, lactides and polyactides. These compounds are impurities, to detect which acid-base titration was carried out. Otherwise, on condition using lactic acid with concomitant impurities leads to the fact that the product may not pass in terms of color.

The synthesis of calcium lactate was carried out by ion exchange between calcium carbonate and lactic acid. The isolated salt was analyzed according to quality criteria, including transparency and the degree of turbidity, solubility, and the degree of staining of the salt solution. Experiments were conducted to determine the quality and authenticity. It is recommended to conduct an experiment to determine the acidity or alkalinity of the product at the synthesis stage, which helps to withstand the subsequent tests described in the pharmacopeia article.

The scientific literature [1] describes the influence of the crystalline structure of calcium carbonate (aragonite, calcite) and the concentration of lactic acid on the synthesis of calcium lactate. For the present synthesis, reactive calcium carbonate (analytical grade) was used. The preparation of the calcium salt of lactic acid was carried out at a reaction temperature of about 60 ° C. An increase in the concentration of lactic acid (more than 2.0 mol%) leads to an increase in the viscosity of the suspension and, as a result, the yield of the reaction decreases. The yield of calcium lactate pentahydrate was 86.8% of theoretical.

LITERATURE

1. Park, J.W. Effects of Precipitated Calcium Carbonate Morphology on the Synthesis of Calcium Lactate / J.W. Park, C. Han // Resources Processing. – 2008. – №55. – P. 12–15.