MODELLING OF TRANSPORT OF DEACIDIFICATION COMPONENTS IN AN ACID PAPER

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The protection of books and archival documents is a current problem addressed by the restoration and conservation workplaces of libraries and archives, as well as research teams of universities and other scientific research institutes in the world. So far, several deacidification methods have been developed and tested in practice, but only some of them have a perspective in the future in terms of economy and required efficiency. The penetration of deacidification components into the paper structure is complicated due to the complex and heterogeneous structure of paper objects (paper is based on cellulose fibres, which contain various oriented macrofibrils, which are bundles of microfibril fibres and these consist of bundles of polymer cellulose chains). Due to the complexity of this problem, the penetration of compounds into such layer of paper has not yet been studied from a quantitative point of view, which would allow to create a theoretical model and subsequent simulation of this process. In this work, we present the simple theoretical model of the paper deacidification process and compare it with the rare available experimental data and semi-empirical approaches.