UDC 655.3.066.53+655.3.066

THE SIMULATION OF DESTRUCTION OF AROMA CAPSULES  
SHELLS DURING THE AROMA-PRODUCTS USING

S. F. Havenko, P. B. Petryk

*Ukrainian Academy of Printing,  
19, Pidholosko St., Lviv, 79020, Ukraine  
havenko@point.lviv.ua*

**Research methodology.** The methodological base of the research of damage process and aroma capsules destruction in aroma coating on print during its using is based on the principles of simulation, systems analysis, theories of friction and wear, electron microscopy.

**Results.** The models of the structure components of real consumer contact with aroma coating on the print, simulated mechanical damage of aroma capsules in the structure of aroma zones during the presentation of fragrances, determined factors of influence on the processes of fragrances release considering friction forces, deformations of aroma coating and its microstructure have been constructed and mathematically described.

**Novelty.** Scientific novelty of the results is the identifying and proving of the impact on the performance properties of aroma varnish coating of their morphological structure; size, shape and structure of aroma capsules; structure and condition aroma coating surface; weight of shell and flavor; the thickness of the coating. Based on theoretical studies and electron microscopy it was established that the aroma zones at the print are able for deformation with flavor release during the presentation by the method of «rub and smell».

**The practical significance.** It was established that the magnitude and frequency of stress in the flavor presentation depend on the efforts of the friction, created by the hand of the consumer, humidity or dryness (sweating) his hands, thickness of microcapsules melamine shell, deformation properties of aroma varnish and a paper printout, which is important for predicting a long lasting use of aroma products by consumers.