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OPTIMIZATION OF THE PROCESS PARAMETERS FOR SCREEN PRINTING ON THE OXYBIODEGRADABLE FILMS

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**Research methodology.** By the methods of statistical data analysis the effect of different screen printing parameters has been investigated, such as the size of the technological gap, inks viscosity, resolution mesh stencil and squeegee angle of inclination to estimate the ink layer abrasion resistance and the image resolution. The research has been carried out by analyzing the curve of random variables normal distribution law, defining basic statistical parameters: maximum, minimum, average value; standard error of the mean; dispersion; asymmetry; kurtosis. Based on regression analysis the analytical expression of communication between the dependent and independent variables has been defined. Using correlation and nonlinear regression analysis the mathematical model of the ink layer abrasion resistance and the image resolution of the films samples have been built.

**Results.** The basic statistical parameters have been designed as a result of the studies, which allow to predict the distribution of these statistical series to be close to normal. A direct linear relationship has been discovered between the ink layer abrasion resistance and the technological gap magnitude, as well as between the image resolution and the resolution mesh stencil. As a result of the non-linear regression analysis the mathematical model of the ink layer abrasion resistance and image resolution has been built.

**Novelty.** As a result of the screen printing parameters optimization for the oxybiodegradable films, we have found out that the abrasion resistant image which withstands up to 3500 cycles with a resolution of 120 l/cm can be obtained by typing the following parameters: inks viscosity 65 Pa · s; technological gap size 6 mm; resolution mesh stencil 140 l/cm; squeegee angle of 75 °C.

**The practical significance.** The results of the screen printing process parameters optimization have great practical importance to obtain high-quality images on the oxybiodegradable films.