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CONTROL AND REGULATION OF THE SURFACE ENERGY  
ON THE POLYPROPYLENE FILMS IN THE FLEXO PRINTING PROCESS BY THE MEANS OF FUZZY LOGIC

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**Research methodology.** In the development of the automatic control and regulation of the energy of the polymer films surface, the algorithm of Mamdani fuzzy inference has been used. Mamdani fuzzy systems have been explained as easily as are clear for the developer and the user.

**Results.** According to the terms, the base of fuzzy knowledge with performance conditions «if-then» to determine the corona dose has been formed. Basing on the algorithm of Mamdani with the help of the defuzzification method «the center of gravity», the calculations have been conducted using MATLAB FIS-editor. А model of the automatic system of the determining of the corona dose and the calculation of the corresponding power generator of the corona station have been built.

**Novelty.** The developed system allows you to control and regulate the surface energy of the polymer films based on the current knowledge. After receiving data on the surface energy of the film, the system sets the necessary dose of corona discharge and considering printing speed, to calculate the necessary power of the generator of the corona station.

**The practical significance.** Principle of the constructed model can be implemented in a fuzzy microcontroller for the automatic installation of the required corona dose and calculating the corresponding power of the corona station.