

*V. Chernyshevych, Master student
A. Tkachuk, PhD, As. Prof.
V. Shadura, senior teacher, language advisor
Zhytomyr State Technological Unibversity*

THE ANALYSIS AND THE EFFICIENCY INCREASE OF PAPER AND CARDBOARD PRODUCTION TECHNOLOGICAL PROCESS

Cardboard is a solid sheet or ribbon-like material with mass more than 250 g/m². According to the accepted classification in Ukraine cardboard is divided into groups: containerboard, printing and office, electrical, civil, structural, roofing and waterproof, cushioning, filtering, textile, footwear.

The material for manufacturing cardboard is predominantly semi-finished products with the intermediate product for the production of paper: brown wood, polycellulose, hard sulphate pulp and waste paper. Cardboard is made of prepared mass with the help of machines (plane and cylinder) in the form of continuous dried cardboard tape.

The assortment of cardboard takes an important place in the economy of modern production. It is produced to pack the various food products, as well as to manufacture the objects of everyday life. Therefore, the development of global paper industry is relatively rapid. Its products are updated regularly every 2 years, and it occurs every 12-15 years. The world average consumption of paper and paperboard per capita per year now is more than 52 kg, in Europe it is 250 kg, in the USA it is 365 kg, while in Ukraine it is 38 kg only. The power of the domestic paper industry is almost 1.0 million tons of paper and cardboard per year. It allows to produce more than 30 kg of cardboard and paper products per capita.

The given-paper considers the automation technological process at production containerboard using multi-cylinder flat grid machine.

The analysis and the efficiency increase of paper and cardboard production technological process is done. Temperature control, condition and weight of the waste paper, temperature in the drying process, the condensate level and the engines, dampers and other exelutive mechanisms are considered.

The machine headbox is the main unit of the board. The speed of the mass flow flowing from the headbox, is highly recommended to be stabilized with high accuracy, since it has to do with the speed of the grid machines using the ratio, which affects the quality of the cardboard canvases in a wet condition. The rate of mass flow that flows from release slit of the headbox, depends on the level of mass in the chamber and air pressure in the air cushion. If the air pressure in the air cushion is stabilized, the rate of mass flow through release gap will depend on the level of the masses. The weight management of waste, the water consumption and the masses, the temperature in the drying part and the level of condensation are performed due to the sensors. The proposed system of automatic control can be implemented based on analog or digital automation