

Abstract

prediction properties wood composite products has special significance because use of this method it can lead to estimate Faster and cheaper The properties these products will be and also effects has less destructive compared with it is standard methods. Artificial neural networks is one of the strong methods for prediction. Artificial neural networks method to controllers of production line of factories it possible gives that can of product line and product quality in the form of entirely engineering adjust or study more accurate of the behavior of material and have process. is Amount of the mechanical properties of medium density fiber board using of multi-layer Feed-Forward Perceptron neural network were investigated. The aim this research predict is amount of the mechanical properties of medium density fiber board and by optimizing the amount of factors effecting, increase quality board. To this end of between the variables various in the various parts Single production of medium density fiber board are measured. as factors input for the modeling multi-layer Feed-Forward Perceptron neural network were considered. for the modeling network software MATLAB R2014a was used. First, effecting variables on the mechanical properties identified, and then this property beside to effecting variables was predicted. proficiency model using the criteria mean absolute percentage error, mean square error, root mean square error, R was evaluated. the values of density, internal bonding strength and modulus of rupture, respectively, with a correlation coefficient 0/67, 99/17 and 0/25 and error 0/605, 17 /92 and 10/13 was predicted. The results of effect variable selection for density, internal bonding strength and modulus of rupture indicates that the variables fiber moisture percent, fiber mat moisture, fiber mat weight, fiber mat thickness before the press and board density for all three properties is important. production process of factory using these variables controlled. factory fiber board medium density can of this Capability multi-layer Feed-Forward Perceptron neural network for produce better to use.

Keywords: Medium density fiber board, Artificial neural networks, Process Control



University of Zabol
Graduate School
Faculty of Natural Resources
Wood and paper science and technology

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**Prediction of mechanical properties of
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artificial neural network models**

Supervisors:

Dr. Ali Bayatkashkoli

Advisors:

Jamshid Piri

Dr. Ali Rafighi

By:

Safdar Qhorbannezhad Samakosh

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