ABSTRACT

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This project aimed to develop a fuzzy logic viscosity control scheme for warp sizing process and study the effect of viscosity control to the concentration control of process size-solution. An effective computer control scheme was developed in order to replace the conventional viscosity control operation being employed in weaving industry.

Three sessions of experiments were carried out within an experimental system. The first session involved with the study of sizing process characteristics. The second session concerned the investigation of the conventional control operation as being done by human operator. The results of the former two sessions were used as the basis for the development of fuzzy logic viscosity control scheme. Then the last session was the demonstration of the viscosity control scheme with a computer control system.

In computer control system, computer will be used to assist human operator in making the decision for appropriate control action. Fuzzy logic viscosity control program is simple to develop and implement. It was concluded from the study of this project that with a regular checking and correcting routine in the viscosity control system of the process size-solution the concentration of the process size-solution can also be maintained within an acceptable limit. Thus the implementation of the computer system for viscosity control of warp size solution is believed to improve the efficiency of sizing process, hence, weaving process. As a result, weaving industry will benefit higher production and loss reduction.