ESTIMATION OF UNKNOWN FLOW RATES OF SPLINTER MIXER USING NEW FUZZY RELATIONAL NEURAL NETWORK METHOD

W.B.Vasantha Kandasamy, S.R.Kannan and N.R.Neelakantan

Experimental study of chemical plants is time consuming expensive and intensive labour, researchers and engineers prefer only theoretical approach, which is inexpensive and effective. Estimation of unknown flow-rates in splitter mixed unit of chemical plants plays a vital role in describing the state of the plant. Researcher approached this problem theoretically using energy and material balance method and has given solution for some unknown flow-rates of splitter mixer unit. But they did not give solution to all unknown flow-rates and in their method, error occurred between the measured and the predicted value. In this paper, we approach the flow-rates problem theoretically using new fuzzy relational neural network method. Probably, so far no one has approached the flow-rates problem via a new fuzzy relational network method.

This paper uses the new fuzzy relational network method in the estimation of unknown flow-rates of chemical plant, further the difference between the measured and predicted value is made very

All Rights Reserved. This work is Copyright © W.B.Vasantha Kandasamy, S.R.Kannan and N.R.Neelakantan, 2003. Mathematicians can use the above material for research purposes, but the work of the author(s) *must* be acknowledged. Violators of copyright, and those indulging in plagiarism and intellectual theft are liable for strict prosecution.

e-mail: vasantha@iitm.ac.in
web: http://mat.iitm.ac.in/~wbv
close to zero. Estimation of unknown flow-rates is carried out in two stages. In the first stage, this paper gives a fuzzy relational neural network is used to estimate the unknown flow-rates and this method guarantees a solution to all unknown flow rates. Here if error between measured and predicted value exists than by varying the membership that is weightages the process is repeated a finite number of times until the difference between the measured and predicted value is made very close to zero. Also this paper describes a generalized result for a chemical plant with n-flow-rates.