World Academy of Science, Engineering and Technology
International Journal of Chemical and Materials Engineering
Vol:11, No:02, 2017

Modelling for Temperature Non-Isothermal Continuous Stirred Tank Reactor Using Fuzzy Logic

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Abstract : Many types of controllers were applied on the continuous stirred tank reactor (CSTR) unit to control the temperature. In this research paper, Proportional-Integral-Derivative (PID) controller are compared with Fuzzy Logic controller for temperature control of CSTR. The control system for temperature non-isothermal of a CSTR will produce a stable response curve to its set point temperature. A mathematical model of a CSTR using the most general operating condition was developed through a set of differential equations into S-function using MATLAB. The reactor model and S-function are developed using m.file. After developing the S-function of CSTR model, User-Defined functions are used to link to SIMULINK file. Results that are obtained from simulation and temperature control were better when using Fuzzy logic control compared to PID control.

Keywords : CSTR, temperature, PID, fuzzy logic
Conference Title : ICECE 2017 : International Conference on Environmental and Chemical Engineering
Conference Location : Kuala Lumpur, Malaysia
Conference Dates : February 12-13, 2017