CONTROLLING STEAM REFORMER OUTLET TEMPERATURE BY USING FUZZY LOGIC CONTROLLER

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Abstract

The purpose of this research is to arrange mathematical model of steam reformer outlet temperature and to arrange the steam reformer control system by using fuzzy logic controller. Steps of the research are collecting the steam reformer design data, arranging mathematical models, simulating open loop simulation and closed loop simulation by using fuzzy logic controller in MATLAB 6.5 Simulink and analizing performance of controller.

Based on the results of closed-loop process simulation, it was concluded that the syn-gas temperature steam reformer and exit oxygen concentration can be controlled by using fuzzy logic controller. Controlling syn-gas temperature has biggest overshoot of 2% , the biggest value of IAE was 38,9. And controlling exit oxygen concentration has biggest overshoot of 6,14%, the biggest value of IAE was 0,00688 in feed gas (CH$_4$ + Steam) flowrate disturbance of 20%.

Keywords: rteam reforming, syn-gas, Fuzzy Logic Controller.