PRE-TREATMENT UNIT LPG PLANT CONTROL WITH PROPORTIONAL INTEGRAL DERIVATIVE (PID) CONTROLLER USING ASPEN PLUS™ SIMULATION

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Abstract

LPG (Liquefied Petroleum Gas) demand as product of oil and hydrocarbon gas are also increasing. Therefore, the optimal processes is required. This can be done by controlling the process optimally. PID controller is the most widely used strategy to control in industrial processes today. The purpose of this thesis is to create a steady state and dynamic simulation to control the pre-treatment unit LPG Plant using Aspen Plus™ software, to make the system control unit pre-treatment LPG Plant using PID controllers, and to make an assessment of the PID controller performances using Integral of the Absolute Value of the Error (IAE). Based on simulation, pre-treatment unit LPG plant can be controlled using its conventional controller. In addition, pre-treatment unit LPG plant can be also controlled well by PID controllers who have been tuned with Ziegler-Nichols method. And we can conclude that control system of pre-treatment unit using the value of the controller parameter-tuning better than the conventional controller used by the manufacturer based on IAE and settling time value.

Keywords : Liquefied Petroleum Gas, PID controller, Aspen Plus, tuning, Ziegler-Nichols, IAE.
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