DESIGN AND CONTROL SYSTEM FOR THE PROCESSING OF PLASTIC WASTE INTO OIL FUEL BASED ON PID (PROPORTIONAL–INTEGRAL–DERIVATIVE) METHOD

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ABSTRACT

Population growth is proportional to the level of consumption of goods or materials. This causes an increase in the production of waste, especially plastic waste. The handling of this problem is by processing plastic waste into fuel oil using a pyrolysis system. The pyrolysis system is a thermochemical decomposition of organic matter through a heating system process without or little oxygen then through a cooling process to separate the resulting vapor and liquid. In this study, a plastic waste processing system was made using the PID (Proportional–Integral–Derivative) method which aims to stabilize the system with a feedback control system using the PID algorithm which can open the valve automatically by providing a set point value and setting the values of Kp, Ki, and Kd. In finding the constant values of Kp, Ki and Kd in this study using the Cohen-coon method, the value of Kp = 4,234171142, Ki = 0.00826811307 and Kd = 324,63505 which can provide an optimal response to the plant in the combustion system.

Keywords: *Plastic, Pyrolysis, PID, Cohen Coon.*