At the refinery Polypropylene, there are 2 main units, purification unit and polymerization unit. Purification unit is used to obtain the composition of propylene 99.6% so it can be polymerized in the next unit, which is polymerization unit. The core of the purification unit is Distillation process using depropanizer column. Thus, the depropanizer column have an important role to determine the composition of propylene. Because feed Depropanizer column’s condition may change, so it needs to be installed control systems to maintain the composition of propylene products. This control system involves seven controlled variables, such as the level of the reboiler, distillation column 2, distillation column 3, accumulator, pressure of top product and top product composition. Proportional Integral Derivative (PID) is a control method that combines the proportional, integral and derivative controller. By using this control system is expected to product purity can be maintained. This research is done to control the 6 controllers above using a PID controller then be observed the response of controllers using composition of propylene feed ± 10% as the disturbance to determine the controllers performance. The best controllers performance are determined by the method IAE (Integral of the Absolute Value of the Error). Steady state and dynamic
simulations are performed using the simulator ASPEN PLUS. Based on the research is obtained results that the application of control with PID controller can control the Depropanizer column in the Polypropylene refinery with a good controllers performance.

**Keyword :** Depropanizer Column, Polypropylene Refinery, Proportional Integral Derivative, Integral of The Absolute Value of The Error, ASPEN PLUS