

Comparison of Various Control Methods for an Industrial Multiproduct Fractionator

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Abstract : Hydrocracker plants are one of the most complicated and most profitable units in the refinery process. It takes long chain paraffinic hydrocarbons as feed and turns them into smaller and more valuable products, mainly kerosene and diesel under high pressure with the excess amount of hydrogen. Controlling the product qualities well directly contributes to the unit profit. Control of a plant is mainly based on PID and MPC controllers. Controlling the reaction section is important in terms of reaction severity. However, controlling the fractionation section is more crucial since the end products are separated in fractionation section. In this paper, the importance of well-configured base layer control mechanism, composed of PID controllers, is highlighted. For this purpose, two different base layer control scheme is applied in a hydrocracker fractionator column performances of schemes, which is a direct contribution to better product quality, are compared.

Keywords : controller, distillation, configuration selection, hydrocracker, model predictive controller, proportional-integral-derivative controller

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