

Abstract

Paraxylene production processes is continuously paraxylene separation process from the mixture of isomers such as ethylbenzene and non-aromatic hydrocarbons (octa xylene, metha ethel xylene and benzene). This process uses a solid adsorbent, desorbent liquid and an apparatus to direct the flow that is a rotary valve. As this process takes place continuously it needs a control system which can control and monitor the process.

Therefore, to support continuously the production process control system made Adsorbent Chamber Control System (ACCS). The control system will control and monitor rotary valve as well as regulate the net flow stream that enters the adsorbent chamber. To assure this control system can help the process of production of paraxylene then some steps were conducted: the first was searching for reference literature, the second was direct observation of the control system of ACCS, the third was looking for advantages and disadvantages of control systems, the fourth was discussions and the last was concluded data.

The research shows that Adsorbent Chamber Control System (ACCS) has several advantages, among the are capable of producing praxylene products with high purity (99.65%) and able to improve the product quickly, as well as has the disadvantage of not having a database types are fluid complete. From these data it can be concluded that the ACCS is very helpful paraxylene production process even though it also has some disadvantages but did not affect the production process.

Keyword: Paraxylene, Rotary Valve, Adsorbent Chamber Control System (ACCS)

Intisari

Proses produksi *paraxylene* yaitu proses pemisahan *paraxylene* secara kontinyu dari campuran isomer yang lain seperti *ethylbenzene* dan *non aromatic hydrocarbon* (*okta xylene*, *metha xylene* dan *ethel benzene*). Proses ini menggunakan *solid adsorbent*, *liquid desorbent* dan suatu peralatan untuk mengarahkan aliran yaitu *rotary valve*. Karena proses ini berlangsung secara kontinyu maka diperlukan suatu sistem kendali yang dapat mengendalikan dan memonitor proses tersebut.

Oleh karena itu, untuk mendukung proses produksi secara kontinyu dibuat sistem kendali *Adsorbent Chamber Control System (ACCS)*. Sistem kendali ini akan mengontrol dan memonitor *rotary valve* serta mengatur *net flow stream* yang masuk kedalam *adsorbent chamber*. Untuk meyakinkan sistem kendali ini dapat membantu proses produksi *paraxylene* maka dilakukan pengamatan dengan langkah-langkah seperti: mencari referensi studi literatur, pengamatan langsung pada sistem kendali *ACCS*, mencari kelebihan dan kekurangan sistem kontrol, diskusi dan menyimpulkan data.

Penelitian ini menunjukkan bahwa *Adsorbent Chamber Control System (ACCS)* memiliki beberapa kelebihan salah satunya yaitu mampu menghasilkan produk *paraxylene* dengan *purity* yang tinggi (99,65 %) dan mampu memperbaiki produk dengan cepat, serta memiliki kelemahan yaitu tidak memiliki database jenis-jenis fluida secara lengkap. Dari data tersebut dapat disimpulkan bahwa *ACCS* sangat membantu proses produksi *paraxylene* walaupun memiliki beberapa kekurangan tetapi tidak berpengaruh terhadap proses produksi.

Keyword: Paraxylene, Rotary Valve, Adsorbent Chamber Control System (ACCS).