

PENGEMBANGAN TEKNOLOGI PERVAPORASI UNTUK PRODUKSI ETANOL ABSOLUT (*ETANOL FUEL GRADE*)

PERVAPORATION TECHNOLOGY DEVELOPMENT FOR ABSOLUTE ETHANOL PRODUCTION (*ETHANOL FUEL GRADE*)

Arizal Aswan, Selastia Yuliati, Robert Junaidi

Staf Pengajar Jurusan Teknik Kimia Politeknik Negeri Sriwijaya
Jalan Sriwijaya Negara Bukit Besar, Palembang 30139
Email: arizal_aswan@ymail.com

ABSTRACT

Membrane pervaporation of ethanol vapor is a purification process based on grade with a purity level is high enough, so that the resulting product is called fuel grade ethanol. Fuel grade the process of increasing ethanol used as a fuel alternative. In this study the ethanol content is done by pervaporation technology method that utilizes a cellulose nitrate membrane separation media. Studies have been conducted on the effect of pressure on the value of the permeate flux and membrane selectivity in pervaporation process. Results showed that operating conditions at a temperature of 100 - 140°C, linear flow rate of 2.5 m³/h, the variation of permeate side pressure of 500 mbar, 550 mbar, 600 mbar, 650 mbar and 700 mbar produces flux and selectivity values are declining. Optimum conditions reached at permeate side pressure is 700 mbar with the flux values 3.4673 x 10⁻⁵ Kg/m².h and selectivity 0.1257. In these conditions the produce fuel grade ethanol yield reached 99.48%. Ethanol is converted into fuel feed grade reaches ± 99%, with a total volume of 193 ml of the feed volume 200 ml.

Key Words : etanol fuel grade, pervaporation, flux, selektiviti