

Utilization of Natural Zeolite as an Adsorbent in Purification of Bioethanol

From HVS Paper With Adsorption Method

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ABSTRACT

Petroleum fuel is a non-renewable natural resource, the use of fuel oil is quite high while the existing fuel supply is running low. There is a need for the development of alternative fuels, one of the alternative energies that has begun to be developed is bioethanol. The use of paper every year has increased so that it has an unfavorable impact on the environment, paper contains a high enough cellulose content, therefore paper is an alternative raw material that has the potential to be converted into ethanol. Ethanol produced by HVS paper has low levels, therefore special treatment is needed so that levels can increase. Adsorption is a contact process between a liquid and a solid with a porous surface. Adsorption will make contact with the solution so that some of the components in the solution will be absorbed on the surface of the adsorbent pores. Natural zeolites have inert properties, high thermal stability, voids that allow adsorption to occur. In this study, the activation of zeolite was carried out using NaOH with a concentration of 0M, 1M, 2M, 3M, 4M and soaking the zeolite into bioethanol for 30 minutes, 2hours, 4hours, 6 hours 8 hours. This is done in order to know the best concentration and also the best length of time in the adsorption process. Based on the results of adsorption, it can be seen that the higher the concentration of NaOH, the higher the levels of bioethanol produced, with the highest results in the treatment of 4M NaOH concentration obtained levels of 4.42%. However, the longer the zeolite contact with bioethanol the lower the concentration obtained, the adsorption treatment for 6 hours was found to be 2.72%. One of the causes is the evaporation of bioethanol during the adsorption process.

Keywords: *Bioethanol, HVS Paper, Adsorption, Zeolite*