ABSTRACT

The use of cooking oil in household needs is something that cannot be avoided. The large amount of used cooking oil that cannot be used causes cooking oil to be wasted. Therefore, used cooking oil will be purified so that it can be used again. Of the various kinds of purification processes, one of the most effective ways is the adsorption process. The adsorbent that can be used is natural zeolite. This study aims to determine the effect of the adsorption process on used cooking oil. The adsorption power of natural zeolite needs to be increased by means of activation. Activation is carried out physically by heating and chemically using hydrochloric acid (HCL). Activated natural zeolite with sizes 50, 60, 70, 80, 90, 100 mesh and zeolite mass 5; 7.5; 10; 12.5; 15 grams. The adsorption process is also carried out by determining the acid number. The percentage of degradation is measured based on the change in color of the solution over a period of 15 to 150 minutes using a photometer. The data obtained shows that the longer the activation and the variation in size, the adsorption capacity of the activated natural zeolite increases. This is due to the loss of impurities on the surface and pores of the zeolite. The average percentage of maximum degradation of activated natural zeolites was obtained after activation with HCL with a zeolite size of 100 mesh and a mass of 15 grams for 150 minutes, which is 55.8% for a decrease in acid number, then a decrease in viscosity of 28.44%, and 98.14% for discoloration.

Keywords: Adsorption, oil, Zeolite, Hydrochloric Acid.