ABSTRACT

Alternative filters as natural resources are needed so that natural zeolite revenues remain and do not run out of existence. The alternative filter referred to as adsorbent synthesis, adsorbent synthesis is carried out using sol-gel and hydrothermal methods with the basic material of elephant grass ash as a source of silica production. The difference in Si / Al mass composition, settling time duration and solidification time are the main control variations to be carried out in this experiment. The experimental results show that the sample using the composition of the constituent ingredients of 1 gram of SiO2, 0.3 grams of Al2O3, 2.75 grams of NaOH, and 16.09 grams of H2O with a deposition duration of 60 minutes and a solidification time of 5 hours with an adsorb specificity of 1496 mg/g in salt water. The results of the XRD test showed that the sample could not be categorized as adsorbent synthesis because the similarity of the results of the adsorbent synthesis graph with the analytical type natural zeolite was still different. And in the FTIR test results, the synthesis of saampel adsorbent already has compound bonds with zeolites.

Keywords: *Adsorbent synthesis, sol-gel and hydrothermal, elephant grass ash, XRD, FTIR, salt watrer, specific adsorbidity, silica*