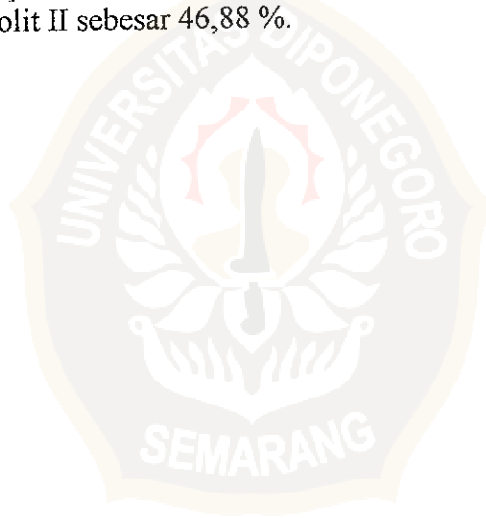


## RINGKASAN

Zeolit alam Wonosari telah dimodifikasi melalui dealuminasi dan kalsinasi supaya dapat digunakan sebagai asorben alkil benzen sulfonat (ABS). Pada tahap pertama, zeolit direndam dalam larutan HF 1 % selama 10 menit kemudian dilanjutkan perendaman melalui refluks dalam larutan HCl 6 N selama 30 menit untuk memperoleh zeolit I. Zeolit II dibuat dengan perendaman zeolit melalui refluks dalam HCl 6 N selama 30 menit dan dilanjutkan perendaman dalam  $\text{NH}_4\text{Cl}$  0,1 N selama tujuh hari. Setelah proses perendaman dilakukan kalsinasi pada suhu  $250^\circ\text{C}$  dan hidrotermal pada suhu  $350^\circ\text{C}$  masing-masing selama 4 jam. Melalui metode metilen blue active substans (MBAS) dapat diketahui besarnya surfaktan ABS yang terserap oleh zeolit. Keasaman zeolit diketahui dengan uji keasaman. Rasio Si/Al diketahui dari data AAS. Luas permukaan dan ukuran pori diperoleh dari data BET. Hasil penelitian menunjukkan untuk zeolit alam, zeolit I, dan zeolit II masing-masing memiliki keasaman 0,628; 0,776; dan 0,909 g/mol. Luas permukaannya masing-masing 10,20; 47,69; dan 14,55 sqm, dengan rasio Si/Al 4,354; 8,690; dan 8,371. Jari-jari pori rata-rata zeolit sebesar 11,24; 10,58; dan 10,05 Å yang menunjukkan terjadinya penurunan. Data XRD menunjukkan bahwa kristalinitas zeolit menurun terlihat dari puncak-puncaknya. Dari MBAS diketahui bahwa kemampuan adsorpsi zeolit menurun, untuk zeolit alam 57,99 %, zeolit I 50,84 %, dan zeolit II sebesar 46,88 %.



## SUMMARY

Natural zeolite of Wonosari has been modified by dealumination and calcination. The product was used to adsorb alkyl benzene sulfonate (ABS). At first, zeolite was immersed in HF 1 % for 10 minutes. Dealumination was done by reflux in HCl 6 N for 30 minutes to produce zeolite I and continued by immersed in NH<sub>4</sub>Cl 0.1 N for seven days to produce zeolite II. Zeolite I and II were calcinated in furnace at 250 °C and hydrothermal treatment at 350 °C for four hours. Methylene blue active substance (MBAS) was used to determine surfactant concentration that has been adsorbed by zeolite indirectly. Zeolite acidity was determined by acidity test whereas Si/Al ratio was determined by AAS. Surface area and pore volume were determined by BET. The results showed that natural zeolite, zeolite I, and zeolite II had acidity 0.628; 0.776; and 0.909 g/mol, surface area were 10.20; 47.69; and 14.55 sqm, and Si/Al ratio were 4.354; 8.690; and 8.371. The average pore radius were 11.24; 10.58; and 10.05 Å that showed decreasing. XRD data has been known that zeolite crystallinity were decreased that showed from peaks. The zeolite capability to adsorb were decreased, natural zeolite are 57,99 %; zeolite I 50,84 % and zeolite II 46,88 %.

