Pengaruh perlakuan tandem asam-basa terhadap karakter Co/zeolit mesopori = Tandem effect of treatment on acid-base character Co/mesoporous zeolite

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Abstrak

Zeolit alam telah dimodifikasi menggunakan tandem asam-basa treatments untuk membentuk zeolit mesopori. Zeolit mesopori kemudian dikarakterisasi menggunakan XRD, FTIR, EDX, AAS, dan BET. Pola XRD menunjukkan struktur zeolit terutama Mordenit. Setelah zeolit mengalami treatment, tidak ada perubahan yang signifikan dalam pola XRD zeolit. Hal ini menunjukkan bahwa struktur zeolit masih utuh. Analisis FTIR menunjukkan pergeseran bilangan gelombang dalam spektrum tandem asam-basa dari raw materialnya. Pergeseran terjadi pada vibrasi ulur -OH (3500 cm-1), tekuk OTO (1200 cm-1), tekuk OTO (850 cm-1), namun gugus utama zeolit masih ada setelah treatment asam-basa. Rasio Si / Al meningkat setelah proses dealuminasi. Ukuran pori rata-rata pada zeolit hasil treatment sebesar 2-50 nm. Hasil zeolit mesopori ZA2B1 dan zeolit impregnasi Co/ZA2B1 digunakan pada sintesis Asam Lemak Methyl Ester (FAME) dari Crude Palm Oil (CPO). Berdasarkan hasil yang didapatkan ZA2B1 dan Co/ZA2B1 dapat mengkonversi CPO menjadi FAME dengan %b/v masing-masing sebesar 2.264% dan 3.950%.

.....Natural zeolite has been modified using acid-base tandem treatments to form a mesoporous zeolite. Mesoporous Zeolites then characterized using XRD, FTIR, EDX, AAS, and BET. The XRD pattern shows the structure of zeolites, especially mordenite. After the zeolite undergo treatment, there was no significant change in the XRD pattern of zeolite. This indicates that the structure of zeolite is still intact. FTIR analysis shows a shift wavenumber in the spectrum of acid-base tandem of raw material. The shift occurred in the OH stretching vibration (3500 cm-1), bend the OTO (1200 cm-1), bend the OTO (850 cm-1), but the main cluster of zeolite is still present after treatment of acid-base balance. Si/Al ratio increases after dealumination process. The average pore size of the zeolite results of treatment of 2-50 nm. Results ZA2B1 mesoporous zeolites and zeolite impregnation Co/ZA2B1 used in the synthesis of Fatty Acid Methyl Ester (FAME) of Crude Palm Oil (CPO). Based on the results obtained ZA2B1 and Co/ZA2B1 can convert the oil into FAME with% w/v respectively 2,264% and 3,950%.