

SINTESIS KATALIS $Mg_{1-x}Ni_xFOH$ SERTA KINERJA KATALITIKNYA PADA REAKSI ANTARA TRIMETILHIDROKUINON DAN ISOFITOL

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ABSTRAK

Pada penelitian ini telah dilakukan sintesis katalis $Mg_{1-x}Ni_xFOH$ ($x=0,025; 0,05; 0,075; 0,10$ dan $0,15$) dengan metode sol-gel. Katalis dikarakterisasi struktur kristalnya dengan difraksi sinar-X, ikatan yang terbentuk dianalisis FTIR, ditentukan keasamannya dengan metode adsorpsi piridin-FTIR dan diukur luas permukaan (S_{BET}) dengan metode adsorpsi-desorpsi gas N_2 . Kinerja katalitik dari katalis $Mg_{1-x}Ni_xFOH$ diamati melalui reaksi antara trimetilhidrokuinon (TMHQ) dan isofitol. Hasil reaksi kemudian dianalisis dengan *High Performance Liquid Chromatography* (HPLC). Aktivitas tertinggi diperoleh katalis $Mg_{0,925}Ni_{0,075}FOH$ sebesar 99,38%, sedangkan selektivitas dan *yield* diperoleh dengan katalis $Mg_{0,9}Ni_{0,1}FOH$ masing masing sebesar 81,95% dan 68,13%. Aktivitas katalis dipengaruhi oleh keasaman Brønsted, sedangkan *yield* dan selektivitas dipengaruhi oleh luas permukaan dan keasaman Lewis. Ukuran pori mempengaruhi selektivitas produk.

Kata kunci: Katalis, Doping, $Mg_{1-x}Ni_xFOH$

SYNTHESIS OF $Mg_{1-x}Ni_xFOH$ CATALYST AND ITS CATALYTIC PERFORMANCE IN TRIMETHYLHYDROQUINONE AND ISOPHYTOL REACTION

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ABSTRACT

This research has synthesized $Mg_{1-x}Ni_xFOH$ catalyst ($x= 0,025; 0,05; 0,075; 0,10$ and $0,15$) by sol-gel method. The catalyst's crystal structure will be characterized by X-ray diffraction, bonding at structure will be determined by Fourier Transform Infrared spectroscopy acidity will be determined by FT-IR pyridine adsorption method and surface area will be measured by N_2 adsorption-desorption method (S_{BET}). The catalytic behavior of the samples has tested by trimethylhydroquinone (TMHQ) and isophytol reaction. The result of catalytic testing has analyzed by High Performance Liquid Chromatography (HPLC). Highest activity of catalyst $Mg_{0,925}Ni_{0,075}FOH$ was equal to 99,38%. Highest selectivity and yield of catalyst $Mg_{0,9}Ni_{0,1}FOH$ were equal 81,95 and 68,13%. Catalytic activity was influenced by Brønsted acidity, whereas selectivity and yield affected by Lewis acidity. Pore size influence selectivity of product reaction.

Keywords: Catalyst, Doped, $Mg_{1-x}Ni_xFOH$