

ABSTRACT

Synthesis and Characterization of Encapsulation Catalyst Nickel (II) on the modification of the mesoporous silica

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Nickel (II) has been encapsulated in a support which has been acquired through previous research that a modified mesoporous silica template molecule where it is separated by solvent extraction. Early stage research began with mesoporous silica heating at a temperature of 200 ° C for 3 hours and then reacted with aniline and boron trifluoride at room temperature. Next is the encapsulation process Ni²⁺ ions through a process reflux where NiCl₂ mixed with mesoporous silica that has been modified in acetonitrile solvent and stirred for 2 hours at 60 °C. to produce a amobilat that to facilitate the writing of the next named amobilat Ni-Silica.

Characterization by FTIR results show that the Ni-silica amobilat has some absorption band which indicates the existence of a bond > Si-OB and the shift of absorption band >Si-O-Si < because of the species of nickel (II) are believed to be in the form of chloride salts. Through SEM photograph can be seen that the Ni-silica amobilat tend to form aggregates of smaller particles. Measurement of metal content by AAS for the same samples proved that the metal nickel of mesoporous silica modifications that template removed by solvent extraction has metal on metal loading is 33%. In the leaching test, Ni-silica amobilat lost only 0.014% Ni metal which indicates the stability of the interaction between the nickel (II) with the support of the mesoporous silica.

Kata kunci: enkapsulasi, mesoporous silica, silica modification, metal loading logam, metal leaching