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Oxidative desulfurization of model diesel using natural kaolin clay modified with MoO_3/Ni/Fe

Maryam Moosavifar,[a*] Saba Mohammadi[a]

[a]*Department of Chemistry, Faculty of science, University of Maragheh, Maragheh,Iran*

[*] *E-mail: m.moosavifar90@gmail.com*

This work focuses on the optimization of the experimental factors affecting oxidative desulfurization process. To achieve that, kaolin was modified using acid treatment. The encaging of metal oxide was performed by impregnation method to improve catalytic activity. Dibenzothiophene (DBT) was chosen as the model substrate and the effect of several parameters such as temperature, catalyst amount, sulfur contamination concentration, and reaction time in the removal process was studied using design experiment. In addition, the effect of interaction of parameters was investigated. The obtained results showed that the prepared catalyst has unique characteristics such as: cheapness, easy access, stability, ability to recover, easy separation. Catalyst shows excellent efficiency in the removal of DBT. This catalyst is recoverable and the catalytic activity remained after 6 run.

Keywords: Desulfurization, kaolin, H_2O_2, Reusability

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