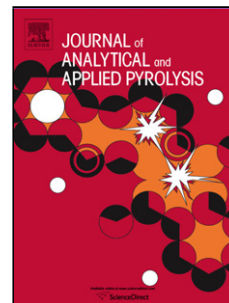


Accepted Manuscript

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PII: S0165-2370(17)31093-8
DOI: <https://doi.org/10.1016/j.jaap.2018.04.003>
Reference: JAAP 4302

To appear in: *J. Anal. Appl. Pyrolysis*

Received date: 13-12-2017
Revised date: 3-4-2018
Accepted date: 3-4-2018

Please cite this article as: Mohammad Rostamizadeh, Fereydoon Yaripour, Hossein Hazrati, Ni-doped high silica HZSM-5 zeolite (Si/Al=200) nanocatalyst for the selective production of olefins from methanol, Journal of Analytical and Applied Pyrolysis <https://doi.org/10.1016/j.jaap.2018.04.003>

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Ni-doped high silica HZSM-5 zeolite (Si/Al=200) nanocatalyst for the selective production of olefins from methanol

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Highlights

- - The multi-steps impregnation technique results in the low reduction of crystallinity.
- - The Ni incorporation leads to the well-adjusted acidity of the nanocatalyst.
- - We report the high selectivity of light olefins (84%) and methanol conversion (>99%).
- - The nanocatalyst represents the stable performance and low coke tendency.

Abstract

This study deals with the modification of high silica H-ZSM-5 zeolite by different transition metals (nickel, iridium and silver). The nanocatalysts were characterized by XRD, FE-SEM, FT-IR, NH₃-TPD, Pyridine adsorption IR spectra (Py-IR) and N₂ adsorption-desorption. The metal (0.5 wt.%) was introduced by wet impregnation technique including multi-steps. The promoter species were uniformly distributed on the nanocatalyst without significant damage of the structure. The nickel

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