

## Selective Pt- and Pd-catalysts on Zr- and Al-Zr pillared Tagan montmorillonite for the isomerization of n-hexane

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The aim of this study was the development of effective Pt- and Pd-catalysts based on Zr- and Al-Zr-pillared acid activated Tagan montmorillonite (MM) to obtain high-octane components of motor fuels by isomerization of n-hexane.

The catalysts were tested under atmospheric pressure of hydrogen in the temperature range 250-400°C, in a flow reactor for 5 ml catalyst, space velocities of n-hexane submission was 0,82-1,87 h<sup>-1</sup> and the molar ratio of H<sub>2</sub>: n-C<sub>6</sub>H<sub>14</sub>=3,5. New catalysts based on Zr and Al-Zr- pillared Tagan MM in Ca- and Na-forms were studied by XRD, BET, EM, and TPD NH<sub>3</sub> methods. The expansion of clay layers of MM on 2,4-4,7 Å was accompanied by an increase in specific surface area in 1,4 - 4,5 times and formation of the mesoporous structure with high content of acid sites.

Deposition of Pt and Pd on Zr and Al-Zr- pillared MM promotes the formation of nanosized metal catalysts due to carrier mesoporosity with narrow pore size distribution. Optimum compositions of Pt/ZrNaHMM and PdAlZrCaHMM- catalysts of n-hexane isomerization with conversion 32.5–53.9% and selectivity to isomers equal to 91.1-100% were determined. The developed catalysts characterized with the predominant formation of di-branched isomers, the maximum yield of which reached 29.9%. These catalysts may find application in the production of high-octane isomers from n-alkanes.

### Biography

N. A. Zakarina has completed her candidate degree at the age 27 years after graduating Moscow state University and degree of doctor of chemical sciences from Institute of Organic Catalysis and Electrochemistry. She is Prof; Doctor of chemical Sciences and the Head of oil refining catalysts laboratory of D.V. Sokolsky Institute of organic catalysis and electrochemistry. She has published more than 300 papers in reputed journals.