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Modification of the properties of EU-1 and mordenite zeolites by dealumination method and investigation and comparison of their performance in xylene isomerization process

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Abstract: The synthesized zeolites of EU-1 and mordenite were modified via dealumination process with Nitric acid and changes of their properties including surface area, diameter, pore volume and Si/Al ratio were investigated. The catalytic performance of these two zeolites was tested and compared together in xylene isomerization process at a fixed bed reactor. The results showed that due to modification of catalysts with acid, because of the removal of a large number of aluminum atoms from the zeolite network, the Si/Al ratio and surface area of zeolites were increased, which resulted in their activity and selectivity of xylene isomerization process. As expected, the modified zeolites had much higher para xylene/ortho xylene, para xylene/xylene and m-xylene conversion than before in xylene isomerization process.

Keywords: *zeolite; EU-1; mordenite; dealumination process; xylene; isomerization.*

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