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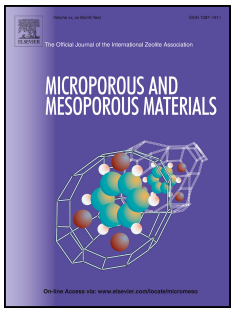

Phosphorus modified hierarchically structured ZSM-5 zeolites for enhanced hydrothermal stability and intensified propylene production from 1-butene cracking

Jian Lv, Zile Hua, Tongguang Ge, Jinlin Zhou, Jian Zhou, Zhicheng Liu, Hangle Guo, Jianlin Shi

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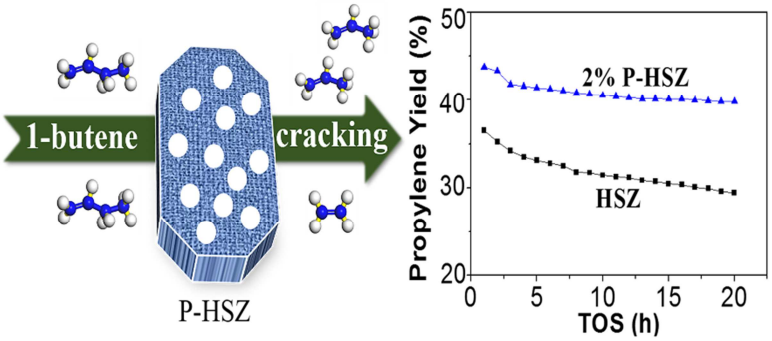
Graphical abstract



P-modified HSZ showed remarkably enhanced hydrothermal stability and improved yield (~43%) of propylene as well as superior anti-deactivation ability during 1-butene cracking process.