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Structure and Activity Research of Hydrocarbons Refining Catalysts Based on Wastes of Ferroalloy Production

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Abstract : An effective way of utilization of ferroalloy production wastes is preparing hydrocarbon refining catalysts from them. It is possible due to accordable transition metals containing in the wastes. In the work, we are presenting the results on elemental analysis of sludge samples from Aksu ferroalloy plant (Aksu, Kazakhstan), method of catalysts preparing, results of physical-chemical analysis of obtained catalysts (X-ray analysis, electron microscopy, the BET method etc.), results of using the catalysts in some hydrocarbons refining processes such as hydrocracking of rubber waste, cracking of gasoil, oxidation of cyclohexane. The main results of catalytic activity research are: a) In hydrocracking of rubber waste 64.9% of liquid products were fuel fractions; b) In cracking of gasoil conversion was 51% and selectivity by liquid products was 99%; c) In oxidation of cyclohexane the maximal product yield 87.9% and selectivity by cyclohexanol 93.0% were achieved.

Keywords : catalyst, cyclohexane oxidation, ferroalloy production waste, gasoil cracking
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