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Selective Catalytic Conversion of Bioethanol to Basic Chemicals over Modified Pentasil Zeolites

The conversion of biomass-derived ethanol to hydrocarbons using pentasil zeolite catalysts offers an alternative and renewable source for the production of gasoline, olefins and aromatics to their production from crude oil by hydrocracking process. In order to optimise the yield and selectivity of bioethanol conversion for any particular range of hydrocarbons, modified pentasil zeolites have been investigated.

In this work unmodified and a broad spectrum of modified pentasil zeolites have been tested and characterised by physicochemical methods. The trends observed indicate that the incorporation of different transition metals and other elements in zeolites by post synthesis led to very active and selective catalysts for the bioethanol conversion.

The correlation between the results of catalytic experiments and physicochemical properties has shown that acidity of samples and weight percentage of incorporated elements are very important criterion in the selectivity and yield of catalytic transformation of bioethanol.