

Catalytic oxidation of hydrocarbons and thiophene at $V_2O_5 : MoO_3$ nano- and microheterostructures

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The catalytic activity of mixed oxides of general composition $(1-x)V_2O_5 : xMoO_3$ towards thermally-induced oxidation of benzene, dodecane and thiophene by molecular oxygen in the temperature range of 250–400°C has been investigated. The possibility of selective oxidation of sulfur-containing compounds in the presence of hydrocarbons was demonstrated. The effect of the catalyst composition on the yield of oxidation products and structural changes in the catalyst $(1-x)V_2O_5 : xMoO_3$ during its operation are discussed. The oxidation mechanism involving the active oxygen species formed at the heterogeneous oxide surface is proposed.

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