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 $(1\text{-}x)V_2O_5$ **:** $xMoO_3$ towards thermally-induced oxidation of benzene, dodecane and thiophene by molecular oxygen in the temperature range of 250–400ºC 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 $(1\text{-}x)V_2O_5$ **:** $xMoO_3$ 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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