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This thesis is dedicated to the direct amination of aliphatic alkenes with particular attention to the reaction between 1-hexene and propanamine. The reaction is exothermic and therefore equilibrium conversion decreases with increasing temperature. However, at low temperatures the zeolite catalysts used are not active for this reaction.

Besides the facts mentioned above, 1-hexene tends to undergo isomerization, oligomerization and polymerization on these catalysts leading to the formation of carbon deposits which deactivate the catalyst. In addition, process selectivity to the desired product which is N-2-hexyl-N-propylamine is reduced by these reactions.

Isomerization of 1-hexene was explored in detail under different amination conditions and some conclusions were made. From the conclusions, a reaction mechanism was proposed and simulations made to describe the possible course of reaction.

Both steady and unsteady state reactor operation were considered in the simulation. The results of the simulations showed that the main product output under certain conditions of unsteady state operation maybe higher than that of the steady state.

Název diplomové práce: Direct amination of aliphatic alkenes

Studijní obor: Technologie organických látek

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