

HETEROGENEOUS CATALYSTS OF POLYMERIZATION PROCESSES

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Heterogeneous catalysis has a number of inherent advantages over homogeneous. So it is not surprising, that today there is a tendency of new heterogeneous catalysts creation and application thereof in the processes, which homogeneous catalysis is traditionally used for.

In heterogeneous catalysis, the key problem of research is the problem of defining the structure and properties of the catalyst (as opposed to homogeneous, where this problem does not exist). After defining the properties of the catalyst it is possible to explain not only its efficiency or inefficiency in any process, but also to predict its catalytic activity. By the type of chemical process, which a catalyst participates in, catalysis can be divided into two large branches: acid-base and red-ox catalysis. The field of our research is the acid-base catalysis. The key parameters, determining the effectiveness of the catalyst in acid-base process, is a surface concentration of active sites and the characteristics of these sites. The latter refers to the number of types of active sites and their strength.

The subject of our research is the acid type catalysts, which we use in the process of cationic oligomerization of unsaturated hydrocarbons, entering into the composition of the petrochemical industry byproducts. Heterogeneous catalysis is most usually used in gas-phase processes. Using of heterogeneous catalysis in liquid-phase processes, and even more in the oligomerization process, is rare and poorly studied so far. The catalysts using by us initiate and ensure the growth of oligomeric chains due to the presence of Brønsted active sites, i.e. protic acid sites, on their surface [1].

[1] R. S. Varma, *Tetrahedron*, 2002, 58, 1235-1255.