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2014

Dostupný z <http://www.nusl.cz/ntk/nusl-175708>

Dílo je chráněno podle autorského zákona č. 121/2000 Sb.

Tento dokument byl stažen z Národního úložiště šedé literatury (NUŠL).

Datum stažení: 27.04.2024

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Application of heterogenized metal complexes in hydrogenation reactions: a comparison of hydrogenations and CTH reactions

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Abstract

The preference of heterogeneous catalysts over the homogeneous ones is well known in the fine chemicals industry. However, considering activity and selectivity the metal complexes as homogeneous catalysts are usually suppressed by the heterogeneous counter-parts. Consequently an increasing demand has developed toward the application of heterogenized metal complexes as catalysts which can combine the advantages of both catalysts types. In the production of fine chemicals the selectivity is probably the most important property. Chemoselectivity, regioselectivity and enantioselectivity play very important role in the synthesis of fine chemicals. Several examples of hydrogenations were studied on heterogenized metal complexes and the selectivity issue will be emphasized in this contribution. Catalytic transfer hydrogenations (CTH) will be also discussed as alternative methods to the classical hydrogenation processes.

Acknowledgement

Authors wish to express their thanks and gratitude to research grant of 103191 OTKA NN for supporting this research.