Catalyst Kinetics and Stability in Homogeneous Alcohol Acceptorless Dehydrogenation -
DTU Orbit (23/12/2018)

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The anthropogenic climate changes caused by meeting the energy demands of society by use of fossil fuels render the
development of benign alternatives imperative. Probably, the most promising alternative is generating energy by means of
power units driven by, e.g., solar, wind, water, etc., and then storing the energy that is not immediately used in battery type
devices. Such a device might consist of hydrogen chemically stored as alcohol(s). The advantage of this method is that it
allows gaseous hydrogen to be stored much more efficiently when liquefied as an alcohol. Moreover, as will be shown in
this review, it is possible to release the hydrogen under mild conditions when employing homogeneous catalysis. This
review considers the kinetic aspects of homogeneously catalysed acceptorless alcohol dehydrogenation reactions. For
clarity, the sections are divided according to alcohol substrate, and each metal are described and discussed in
subsections. Moreover, the kinetic information in the homogeneously catalysed AAD is traditionally provided simply as the
turnover frequency, and more in-depth studies on the actual kinetic parameters are to date still largely elusive.

General information
State: Published
Organisations: Department of Chemistry, Centre for Catalysis and Sustainable Chemistry, Organic Chemistry
Contributors: Nielsen, M.
Pages: 91-110
Publication date: 2018

Host publication information
Title of host publication: Advanced Chemical Kinetics
Publisher: InTechOpen
Keywords: Homogeneous catalysis, Acceptorless dehydrogenation, Alcohols, Catalyst kinetics, Catalyst stability
Electronic versions:
59039.pdf
DOIs:
10.5772/intechopen.70654
Research output: Research - peer-review : Book chapter – Annual report year: 2018