

A review on hydrogenolysis of sorbitol over heterogeneous catalysts

Annur N.H.R.^a; Alexzman Z.A.^a; Daud A.R.M.^b; Alias A.F.N.^a; Hairi H.M.^a; Setiabudi H.D.^{c, d}

^a Faculty of Applied Sciences, Universiti Teknologi MARA, Cawangan Johor, Kampus Pasir Gudang, Masai, 81750, Johor, Malaysia

^b School of Chemical Engineering, College of Engineering, Universiti Teknologi MARA, Shah Alam, 40450, Selangor, Malaysia

^c Faculty of Chemical and Process Engineering Technology, Universiti Malaysia Pahang, Gambang, Kuantan, 26300, Pahang, Malaysia

^d Centre of Excellence for Advanced Research in Fluid Flow, Universiti Malaysia Pahang, Gambang, Kuantan, 26300, Pahang, Malaysia

ABSTRACT

The increase in greenhouse gas emissions due to high consumption of fossil fuels is one of the key contributors to climate change. Conversion of biomass into valuable chemicals via hydrogenolysis reaction is regarded as an alternative approach to address this matter, particularly through catalytic hydrogenolysis of sorbitol. Unfortunately, the deactivation of the catalyst has limited its industrial application. Therefore, new compelling catalysts that may enhance the performance of hydrogenolysis reaction has garnered considerable interest. Ruthenium-based catalyst has a high potential as it demonstrated high catalytic activity in most studies. The effect of metal (monometallic and bimetallic), supporting material and acid/base properties have significant effects on catalytic performance. This review is an attempt to provide a recent summary on the sorbitol hydrogenolysis over heterogeneous catalysts, involving the aspects of the catalysts, reaction mechanism and deactivation, as well as future opportunities on the studies.

KEYWORDS

Biomass; Deactivation; Reaction mechanism; Sorbitol hydrogenolysis; Valuable chemicals

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