

Accepted Manuscript

Title: Development of cerium promoted copper-magnesium catalysts for biomass valorization: Selective hydrogenolysis of bioglycerol

Author: Baithy Mallesham



PII: S0926-3373(15)30056-4
DOI: <http://dx.doi.org/doi:10.1016/j.apcatb.2015.07.037>
Reference: APCATB 14181

To appear in: *Applied Catalysis B: Environmental*

Received date: 3-5-2015
Revised date: 22-7-2015
Accepted date: 24-7-2015

Please cite this article as: Baithy Mallesham, Development of cerium promoted copper-magnesium catalysts for biomass valorization: Selective hydrogenolysis of bioglycerol, Applied Catalysis B, Environmental <http://dx.doi.org/10.1016/j.apcatb.2015.07.037>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Development of cerium promoted copper-magnesium catalysts for biomass valorization: Selective hydrogenolysis of bioglycerol

Baithy Mallesham,[†] Putla Sudarsanam,[‡] Bellala Venkat Shiva Reddy,[†] Benjaram M. Reddy^{*†}

[†]*Inorganic and Physical Chemistry Division, CSIR-Indian Institute of Chemical Technology, Uppal Road, Hyderabad – 500 007, India*

[‡]*Centre for Advanced Materials and Industrial Chemistry (CAMIC), School of Applied Sciences, RMIT University, Melbourne VIC 3001, Australia*

Re-revised Manuscript Submitted to Applied Catalysis B: Environmental

* Corresponding author. Tel.: +91 40 3510 1714; Fax: +91 40 2716 0921

E-mail addresses: bmreddy@iict.res.in, mreddyb@yahoo.com (B.M. Reddy)

➤

➤ **Highlights** ▶

- ▶ ▶ Selective catalytic hydrogenolysis of glycerol to 1,2-propanediol was investigated.
- ▶ Addition of Ce to Cu/Mg enhanced catalytic activity and 1,2-propanediol selectivity.
- ▶ CeO₂, as a promoter of Cu/Mg, improves the oxygen vacancies in the catalyst. ▶
- Cu/Ce₃/Mg showed excellent activity due to enhanced physicochemical properties. ▶
- Notably, Cu/Ce₃/Mg was stable up to 3 cycles without considerable loss of activity.

Graphical abstract

Abstract

The selective hydrogenolysis of bioglycerol to 1,2-propanediol was investigated over a series of Ce-promoted Cu/Mg catalysts, namely, Cu/Mg (1/9), Cu/Ce/Mg (1/1/5), Cu/Ce/Mg (1/3/5), and Cu/Ce/Mg (1/5/5) prepared by a coprecipitation method. The

Download English Version:

<https://daneshyari.com/en/article/6499576>

Download Persian Version:

<https://daneshyari.com/article/6499576>

[Daneshyari.com](https://daneshyari.com)