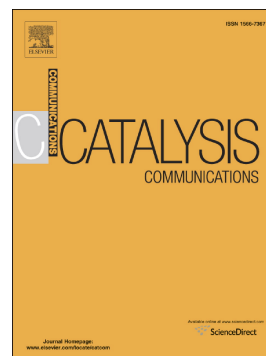


Accepted Manuscript

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PII: S1566-7367(17)30104-8
DOI: doi: [10.1016/j.catcom.2017.03.018](https://doi.org/10.1016/j.catcom.2017.03.018)
Reference: CATCOM 4975

To appear in: *Catalysis Communications*

Received date: 31 January 2017

Revised date: 9 March 2017

Accepted date: 18 March 2017

Please cite this article as: Shengxin Chen, Ruixia Liu, Yajing Li, Ruirui Zhang, Cong Zhao, Hongguo Tang, Congzhen Qiao, Suojiag Zhang , Relationship of basicity and hydrogen bond properties of ionic liquids with its catalytic performance: Application to synthesis of propylene glycol methyl ether. The address for the corresponding author was captured as affiliation for all authors. Please check if appropriate. Catcom(2017), doi: [10.1016/j.catcom.2017.03.018](https://doi.org/10.1016/j.catcom.2017.03.018)

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Relationship of Basicity and Hydrogen Bond Properties of Ionic Liquids with Its Catalytic Performance: Application to Synthesis of Propylene Glycol Methyl Ether

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Keywords: Ionic liquids; Hydrogen bond; Basicity; Propylene oxide; Etherification; Propylene Glycol Methyl Ether

Abstract

The relationship of basicity and hydrogen bond with catalytic performance was investigated in synthesis of propylene glycol methyl ether (PGME) catalyzed by various ILs ([Emim][OAC], [Bmim][OAC], [N₂₂₂₂][OAC], [EtOHN₁₁₁][OAC], [N₄₄₄₄][Br], [Bmim][N(CN)₂], [Bmim]Br, [Bmim][PF₆]). The basicity and Kamlet-Taft parameters of each catalyst were evaluated by UV-visible spectroscopy. It was found the catalytic performance is the synergistic effect of basicity and hydrogen bond donating ability in the synthesis of PGME from PO and CH₃OH, which is quite different from the conventional basic catalytic mechanism.

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