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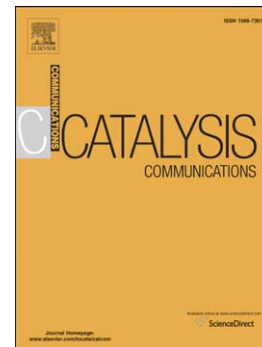
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Yanhong Huang, Shuqian Xia, Peisheng Ma

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Effect of zeolite solid acids on the *in situ* hydrogenation of bio-derived phenol

Yanhong Huang^a, Shuqian Xia^{a,*}, Peisheng Ma^a

^a Key Laboratory for Green Chemical Technology of the State Education Ministry,
Collaborative innovation center of chemical science and engineering (Tianjin),
School of Chemical Engineering and Technology, Tianjin University, Tianjin 300350,
China

* Corresponding author. Tel.: + 86 22 2740 5929.

E-mail address: shuqianxia@tju.edu.cn (S. Xia).

Abstract:

The effect of zeolite solid acids on the *in situ* hydrogenation of bio-derived phenol over Raney Ni was investigated, which indicated that the conversion of phenol increased with the addition of zeolite solid acids and Hbeta (Si/Al=60) showed the best performance of high phenol conversion and selectivity towards the desired products and low carbon loss. In addition, the quantity of Hbeta (Si/Al=60) and Raney Ni had marked impact on the carbon loss, but little effect on both the conversion and the products distribution. And the mixed catalysts of Raney Ni and Hbeta (Si/Al=60) exhibited excellent stability.

Keywords: phenol, bio-oil, *in situ* hydrogenation, Raney Ni, zeolite solid acid.

1. Introduction

Lately, the method of the *in situ* hydrogenation has been proposed to upgrade the quality of bio-oil. In this method, liquid hydrogen donor solvents were used to generate hydrogen instead of external source of hydrogen. Ton and Fisk used acids as hydrogen donors to hydrogenate model

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