Synergistic Effect of Oxygen Vacancies and Ni Species on Tuning Selectivity of Ni/ZrO₂ Catalyst for Hydrogenation of Maleic Anhydride into Succinic Anhydride and γ-Butyrolactone

Lili Zhao ¹, Jianghong Zhao ¹, Tianjie Wu ¹, Min Zhao ², Wenjun Yan ², Yin Zhang ¹, Haitao Li ¹, Yongzhao Wang ¹, Tiancun Xiao ³* and Yongxiang Zhao ¹,*

¹ Engineering Research Center of Ministry of Education for Fine Chemicals, School of Chemistry and Chemical Engineering, Shanxi University, Taiyuan 030006, China; lzhao@sxu.edu.cn (L.Z.); zhaojianghong@sxu.edu.cn (J.Z.); 20172290709@email.sxu.edu.cn (T.W.); sxuzhy@sxu.edu.cn (Y.Z.); htl@sxu.edu.cn (H.L.); catalyst@sxu.edu.cn (Y.W.)
² Institute of Coal Chemistry, Chinese Academy of Sciences, Taiyuan 030001, China; zhaomin@sxicc.ac.cn (M.Z.); yanwenjun@sxicc.ac.cn (W.Y.)
³ Inorganic Chemistry Laboratory, Oxford University, Oxford, OX1 3QR, UK
* Correspondence: xiao.tiancun@chem.ox.ac.uk (T.X.); yxzhao@sxu.edu.cn (Y.Z.)

Supporting Information

S1. XRD patterns of Ni/ZrO₂ (P) and Ni/ZrO₂ (H) catalysts with 5wt% nickel loading

Figure S1. XRD patterns of Ni/ZrO₂ (P) and Ni/ZrO₂ (H) catalysts with 5wt% nickel loading

S2. The catalytic performance in MA hydrogenation of Ni/ZrO₂ catalysts with 5wt% nickel loading

Table S1. The catalytic performance in MA hydrogenation of Ni/ZrO₂ catalysts with 5wt% nickel loading

<table>
<thead>
<tr>
<th>Catalysts</th>
<th>Crystalline size of Ni (nm)</th>
<th>Conversion of MA (%)</th>
<th>Selectivity of GBL (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ni/ZrO₂ (P)</td>
<td>9</td>
<td>100</td>
<td>2.1</td>
</tr>
<tr>
<td>Ni/ZrO₂ (H)</td>
<td>10</td>
<td>100</td>
<td>20.8</td>
</tr>
</tbody>
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