Electronic Supplementary Information

Towards the sustainable production of pyridines via thermocatalytic conversion of glycerol with ammonia over zeolite catalysts

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Figure S1: The scheme of the fixed bed reactor for thermo-catalytic conversion of glycerol with ammonia over zeolites.
Figure S2: The NH$_3$-TPD spectra of different zeolites with different pore structure and different Si/Al ratio.
Figure S3. The NH$_3$-TPD spectra of HZSM-5 (Si/Al=25) after each cycles.
Table S1: The liquid product distribution of glycerol dehydration over zeolites with nitrogen.

<table>
<thead>
<tr>
<th>Compounds</th>
<th>GC Peak area (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acrolein</td>
<td>53.6</td>
</tr>
<tr>
<td>Acetaldehyde</td>
<td>15.2</td>
</tr>
<tr>
<td>Acetol</td>
<td>5.3</td>
</tr>
<tr>
<td>Acetone</td>
<td>4.6</td>
</tr>
<tr>
<td>2-propenol</td>
<td>2.1</td>
</tr>
<tr>
<td>Propionaldehyde</td>
<td>2.8</td>
</tr>
<tr>
<td>Benzene</td>
<td>6.7</td>
</tr>
<tr>
<td>Toluene</td>
<td>3.1</td>
</tr>
<tr>
<td>Xylenes</td>
<td>1.5</td>
</tr>
<tr>
<td>Others</td>
<td>5.1</td>
</tr>
</tbody>
</table>

Reaction conditions: 500 °C; HZSM-5, Si/Al=25, 0.5g; WHSV, 2 h⁻¹; residence time: 0.5 s; glycerol content, 100%.