Electronic Supplementary Information

Tin-palladium supported on alumina as a highly active and selective catalyst for hydrogenation of nitrate in actual groundwater polluted with nitrate

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Table S1 Catalytic performance of Sn$_{0.5}$Pd/Al$_2$O$_3$ with different metal loadings for the hydrogenation of NO$_3^-$.

<table>
<thead>
<tr>
<th>Loading amount of Sn$_{0.5}$Pd /wt%</th>
<th>NO$_3^-$-decomposition rate/ mmol h$^{-1}$ g$^{-1}$</th>
<th>Selectivity$^a$/%</th>
<th>NH$_4^+$</th>
<th>Gas</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.5</td>
<td>8.0</td>
<td>1</td>
<td>99</td>
<td></td>
</tr>
<tr>
<td>1.0</td>
<td>1.4</td>
<td>1</td>
<td>99</td>
<td></td>
</tr>
</tbody>
</table>

Reaction conditions: catalyst weight, 10 mg; reactant NO$_3^-$ (from KNO$_3$), 0.8 mmol dm$^{-3}$, volume of reaction solution 250 cm$^3$; gas composition, H$_2$/CO$_2$ = 1/1; gas flow rate, 30 cm$^3$ min$^{-1}$; and reaction temperature, 298 K.

$^a$ Selectivity at around 30% conversion.