Electronic Supplementary Information

Nanostructured Cu and Cu@Cu₂O core shell catalysts for hydrogen generation from ammonia–borane

Suresh Babu Kalidindi, Udishnu Sanyal, and Balaji R. Jagirdar*
Department of Inorganic & Physical Chemistry, Indian Institute of Science,
Bangalore 560 012, India

Contents
Figure S1. XRD pattern of Cu@Cu₂O core shell nanoparticles after 8 cycles of hydrolysis
Figure S2. SEM images: surface morphology of Cu@Cu₂O core shell catalyst (a) before the hydrolysis reaction; (b) after 8 cycles of hydrolysis
Figure S3. FTIR spectra of AB (dashed line) and B(OH)₃ (isolated as one of the hydrolysis reaction products) (solid line)
Figure S4. BET Isotherm of Cu nano powder obtained by the SMAD method
Figure S5. BET Isotherm of nano Cu₂O
Figure S6. BET Isotherm of Cu@Cu₂O core shell nanoparticles
Figure S7. BET Isotherm of commercial Cu powder
Figure S8. BET Isotherm of commercial Cu₂O powder
Table S1. Surface areas of the samples
Figure S1. XRD pattern of Cu@Cu$_2$O core shell nanoparticles after 8 cycles of hydrolysis

Figure S2. SEM images: surface morphology of Cu@Cu$_2$O core shell catalyst (a) before the hydrolysis reaction; (b) after 8 cycles of hydrolysis
Figure S3. FTIR spectra of AB (dashed line) and B(OH)$_3$ (isolated as one of the hydrolysis reaction products) (solid line)

![FTIR spectra](image)

Figure S4. BET Isotherm of Cu nano powder obtained by the SMAD method

![BET Isotherm](image)
Figure S5. BET Isotherm of nano Cu$_2$O

Figure S6. BET Isotherm of Cu@Cu$_2$O core shell nanoparticles
Figure S7. BET Isotherm of commercial Cu powder

![BET Isotherm of commercial Cu powder](image)

Figure S8. BET Isotherm of commercial Cu₂O powder

![BET Isotherm of commercial Cu₂O powder](image)

Table S1. Surface areas of the samples

<table>
<thead>
<tr>
<th>Sample</th>
<th>Specific surface area (m²/g)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cu nano powder</td>
<td>91.1</td>
</tr>
<tr>
<td>Cu@Cu₂O core shell nanoparticles</td>
<td>79.0</td>
</tr>
<tr>
<td>Cu₂O nano powder</td>
<td>60.5</td>
</tr>
<tr>
<td>Commercial Cu powder</td>
<td>6.3</td>
</tr>
<tr>
<td>Commercial Cu₂O powder</td>
<td>14.1</td>
</tr>
</tbody>
</table>