Supplementary Materials: Performance Enhanced SAPO-34 Catalyst for Methanol to Olefins: Template Synthesis using a CO₂-based Polyurea

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Figure S1. Molecular weight (Mn) of PUa with the change of Pressure (a) and Temperature (b).

Figure S2. XRD patterns of SAPO-34 sample synthesized with a PUa/Al₂O₃ ratio of 0.20.
Figure S3. SEM images of SAPO-34 sample synthesized with a PUa/Al2O3 ratio of 0.20.

Figure S4. Product (except for ethylene and propylene) selectivity of methanol conversion reaction for different SAPO-34 catalyst, (a) PUa0, (b) PUa0.08, (c) PUa0.10.

Table S1. The variation of coke formation in methanol conversion over different SAPO-34 catalysts.

<table>
<thead>
<tr>
<th>Sample name</th>
<th>TOS</th>
<th>Coke (min)</th>
<th>R_{cok} (%) g/gcat</th>
<th>P_{cok} (g/gMeOH)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PUa0</td>
<td>320</td>
<td>24.0</td>
<td>0.375</td>
<td>0.015</td>
</tr>
<tr>
<td>PUa0.08</td>
<td>370</td>
<td>18.5</td>
<td>0.250</td>
<td>0.010</td>
</tr>
<tr>
<td>PUa0.10</td>
<td>375</td>
<td>16.6</td>
<td>0.225</td>
<td>0.009</td>
</tr>
</tbody>
</table>

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