Electronic Supporting Information

Silica-immobilized Aquivion PFSA superacid: application to heterogeneous direct etherification of glycerol with \( n \)-butanol

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Table S1 Textural properties of calcined Aquivion-silica composites.

<table>
<thead>
<tr>
<th>Sample</th>
<th>$S_{\text{BET}}$ (m$^2$ g$^{-1}$)</th>
<th>$V_p$ (cm$^3$ g$^{-1}$)</th>
<th>$D_p$ (nm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Silica-C</td>
<td>565</td>
<td>0.20</td>
<td>2.3</td>
</tr>
<tr>
<td>AqSi-1C</td>
<td>1044</td>
<td>0.83</td>
<td>3.3</td>
</tr>
<tr>
<td>AqSi-2C</td>
<td>251</td>
<td>0.32</td>
<td>4.2</td>
</tr>
</tbody>
</table>
Fig. S1 TGA/DTG profiles of calcined silica and Aquivion-silica composites.
Fig. S2 XRD patterns of Aquivion, silica and Aquivion-silica composites (top), and for the calcined silica and Aquivion-silica samples (bottom) for the large angle (a, c) and low angle zones (b, d).
Fig. S3 FTIR spectra of calcined silica and Aquivion-silica composites.
Fig. S4 O1s XPS spectra of silica and Aquivion-silica composites.
Scheme S1 Representative structures of possible products in etherification mixtures of glycerol and $n$-butanol. Products included in the dashed-line frame, being very difficult to separate and analyze, were not quantified.
Scheme S2 Reactants and main products analyzed in the catalytic reaction.