Supporting Information

Sub-5 μm Balls Possessing Forest-like Poly(methyloxazoline)/Polyethyleneimine Side Chains and Templated Silica Microballs with Unusual Internal Structures

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Figure S1. SEM images of $\mu$-PStCl prepared from different stabilizers: (a,g) PVP K60 ($M_w = 160,000$); (b,h) PVP K90 ($M_w = 600,000$); (c,i) Hydroxypropyl cellulose3−5.9 (HPC3−5.9, $M_w = 160,000$); (d,j) HPC150−400 ($M_w = 620,000$); (e,k) Poly(2-ethyl-2-oxazoline) (PEOZ, $M_w = 50,000$); (f,l) PEOZ ($M_w = 500,000$).

Figure S2. SEM images of the as-prepared microballs of $\mu$-PSt-g-PEI@SiO$_2$ mediated from (a) water, (b) methanol, (c) ethanol and (d) acetone.
Figure S3. DLS curves of $\mu$-PSt-g-PEI in different solvents
Scheme S1. Chemical etching of the silica microballs mediated from water

\[\text{SiO}_2 \xrightarrow{\text{H}_2\text{CO-Si=O-CH}_3} \xrightarrow{\text{NH}_2} \xrightarrow{\text{APS}} \text{for 12 h at } 100 ^\circ\text{C in water}\]

10 mL Flask

- SiO\(_2\) 30 mg (Calcined at 800 °C)
- Water 7.5 mL
- APS 0.5 mL

100 °C, 6 h
Centrifugation
Washing by acetone

White powders (subjected to SEM)
Scheme S2. Chemical etching of the silica microballs mediated from methanol

10 mL Flask

- SiO$_2$ 30 mg (Calcined at 800 $^\circ$C)
- Water 7.5 mL
- APS 0.5 mL
- 70 $^\circ$C, 12 h
- Centrifugation
- Washing by acetone

White powders (subjected to SEM)
Figure S4. Influences of the calcination temperatures on the sizes of the silica microballs.

Sample: $\mu$-PSt-g-PEI@SiO$_2$ mediated from methanol. Calcination temperatures: 700 (a, b), 800 (c, d), and 900 °C (e, f).
Figure S5. $^{29}$Si CP/MAS NMR spectra of silica microballs prepared by calcination of $\mu$-PSt-g-PEI@SiO$_2$ mediated from methanol. Calcination temperature: (a) 700 °C, (b) 800 °C and (c) 900 °C.

Table S1. Integration values of silica microballs obtained by calcination of $\mu$-PSt-g-PEI@SiO$_2$ mediated in methanol

<table>
<thead>
<tr>
<th>Calcination temperature (°C)</th>
<th>Integration values (%)$^{b)}$</th>
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<tbody>
<tr>
<td></td>
<td>Q2</td>
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<tr>
<td>700</td>
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<tr>
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<td>18.4</td>
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