Endowing Cationic Hydrophobic Associating Polyacrylamide Solution CO₂ Switchable Property with N, N-dimethylolamidopropylamine via the Assembly Transition between Vesicles and Spherical Micelles by CO₂

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Scheme S1 Synthesis route of hydrophobic associating copolymer PAD
Table S1 Results of molecular weight of copolymer PAD

<table>
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<tr>
<th>Sample</th>
<th>Mass (g) DOAPA</th>
<th>Mass (g) AM</th>
<th>Feed Ratio of DOAPA(mol%)</th>
<th>Yield (%)</th>
<th>$M_\eta$</th>
<th>$M_w$</th>
<th>$M_n$</th>
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<tbody>
<tr>
<td>PAD</td>
<td>0.52</td>
<td>19.48</td>
<td>0.50</td>
<td>80.10</td>
<td>230221</td>
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Figure S1 molecular weight of copolymer PAD
Figure S2 IR spectrum of monomers and copolymers
$^1$H NMR (400 MHz, D$_2$O): 1.10(3H, alkyl –CH$_3$), 1.59(32H, alkyl –CH$_2$), 2.12(2H, α-CH$_2$ to N$^+$), 2.27(2H, -CH$_2$-CH-) 3.55(6H, -CH$_3$ to N$^+$; 2H, -CH$_2$ to N$^+$), 3.60 (1H, -CH-C=O), 7.30 (2H, -NH$_2$)
Figure S5 Surface tension vs logC plots for DOPAH$^+$ at 25 °C
Figure S6 $^1$H-NMR spectra of the DOAPA aqueous before and after bubbling of CO$_2$ using CD$_3$OD/D$_2$O (v/v=5:1) as a solvent.