Table 1. Percent decrease of current through C6/MUA MPC films upon exposure to different partial pressures (PP) of vapor.

<table>
<thead>
<tr>
<th>PP Ethanol (Vapor / N₂)</th>
<th>Cu²⁺ No SPB</th>
<th>Ag⁺ SPB</th>
<th>Zn²⁺ No SPB</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 / 120</td>
<td>9</td>
<td>4</td>
<td>11</td>
</tr>
<tr>
<td>75 / 75</td>
<td>41</td>
<td>9</td>
<td>40</td>
</tr>
<tr>
<td>105 / 45</td>
<td>57</td>
<td>12</td>
<td>55</td>
</tr>
<tr>
<td>135 / 15</td>
<td>66</td>
<td>13</td>
<td>66</td>
</tr>
<tr>
<td>150 / 0</td>
<td>71</td>
<td>14</td>
<td>72</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PP CH₂Cl₂ (Vapor / N₂)</th>
<th>Cu²⁺ No SPB</th>
<th>Ag⁺ SPB</th>
<th>Zn²⁺ No SPB</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 / 120</td>
<td>48</td>
<td>10</td>
<td>42</td>
</tr>
<tr>
<td>75 / 75</td>
<td>82</td>
<td>19</td>
<td>78</td>
</tr>
<tr>
<td>105 / 45</td>
<td>90</td>
<td>22</td>
<td>87</td>
</tr>
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<td>135 / 15</td>
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</tr>
</tbody>
</table>
Generic figure of UV-Vis spectra monitoring absorbance with each dipping cycle.

Figure 1
Figure 2

$N$, Number of MUA Ligands Exchanged into MPC

$\ln(\sigma_{EL})$
Figure 3

(a) Absorbance at 400 nm vs. Time in MPC (hr)

(b) Absorbance at 400 nm vs. Time in MPC (hr)
Figure 4

Absorbance at 300 nm

# of dips

0.0 0.5 1.0 1.5 2.0 2.5 3.0

$\text{Au}_{140}(\text{C}_6)_{12}(\text{MUA})_{32}$

$\text{Au}_{140}(\text{C}_6)_{21}(\text{MUA})_{30}$

$\text{Au}_{140}(\text{C}_6)_{27}(\text{MUA})_{26}$

$\text{Au}_{140}(\text{C}_6)_{32}(\text{MUA})_{17}$
Figure 5

Absorbance at 600 nm

- AgCF$_3$CO$_2$
- Cu(ClO$_4$)$_2$
- AgCF$_3$SO$_3$
- PdCl$_2$
- FeCl$_2$
- Zn(NO$_3$)$_2$
Figure 6

Here is a graph showing the absorbance of various compounds across different wavelengths. The wavelength (nm) range is from 200 to 1000, and the absorbance is measured across the y-axis from 0 to 3.

- **AgCF$_3$SO$_3$ (Ag$^+$)**
- **AgCF$_3$CO$_2$ (Ag$^+$)**
- **FeCl$_2$ (Fe$^{2+}$)**
- **Cu(ClO$_4$)$_2$ (Cu$^{2+}$)**
- **PdCl$_2$ (Pd$^{2+}$)**

The peak absorbance at 550 nm is highlighted for each compound.
Figure 7

(a) Absorbance vs. Wavelength, nm for Cu²⁺

(b) Absorbance vs. Wavelength, nm for Ag¹⁺

(c) Absorbance vs. Wavelength, nm for Cu²⁺, Ag¹⁺, and Zn²⁺

(d) Current, µA vs. Potential, mV for Ag¹⁺, Cu²⁺, and Zn²⁺