

## Supporting Information

### Microencapsulation of Triazole Derivative for Self-Healing Anticorrosion Coatings

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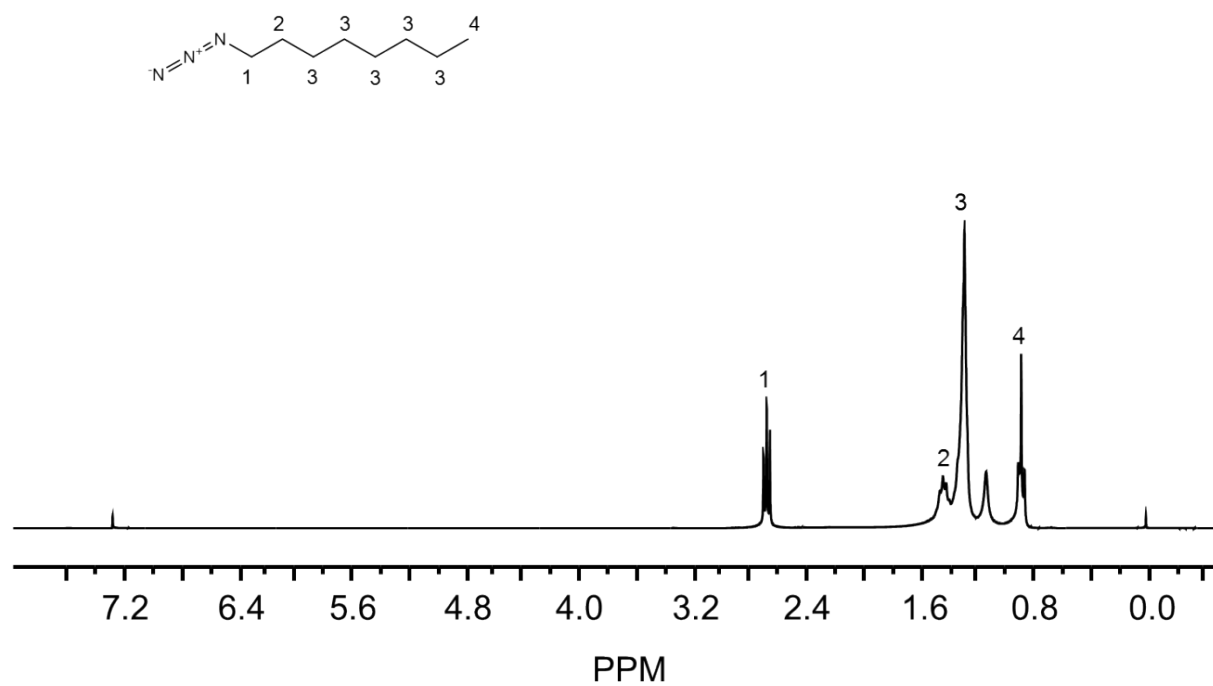
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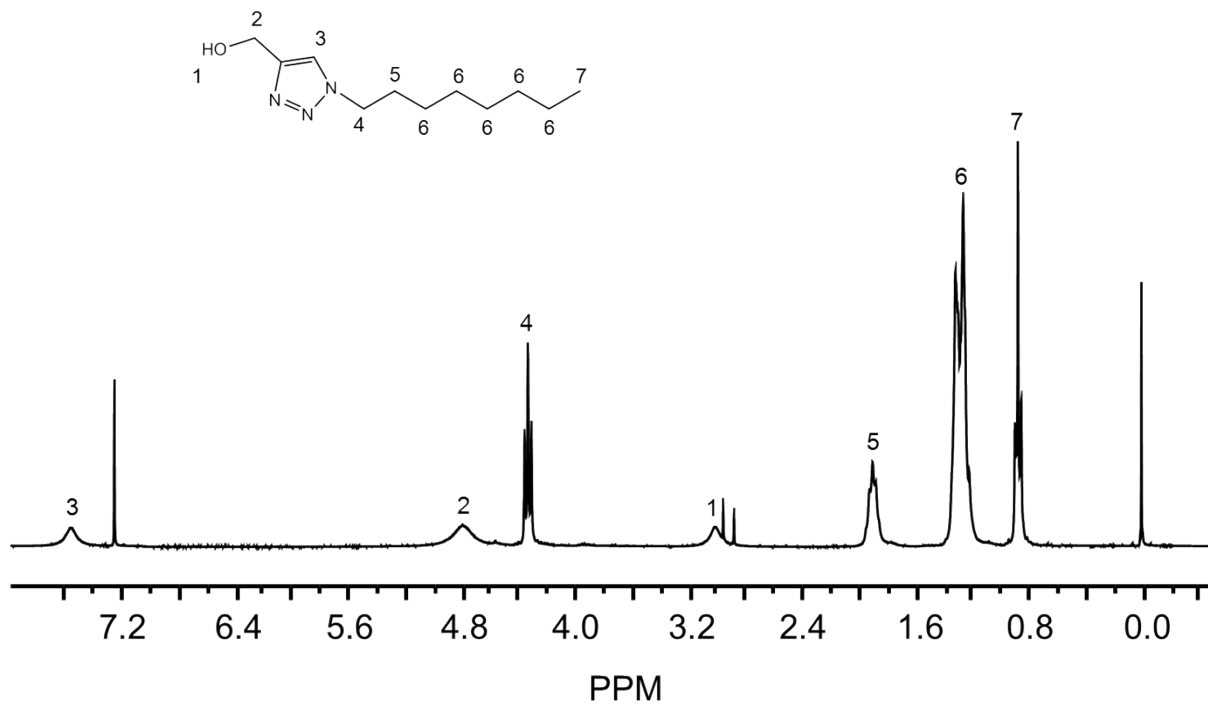
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Az-C<sub>8</sub>



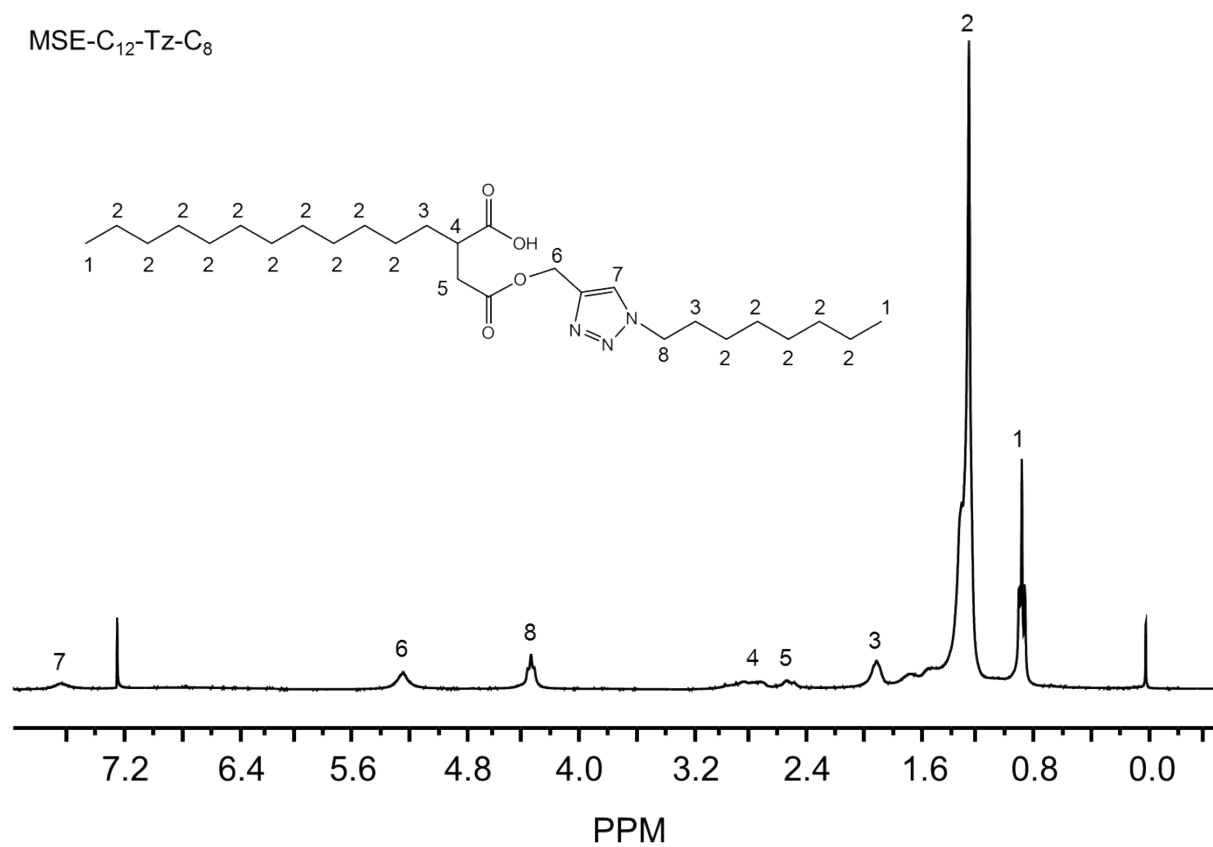
**Figure S1.** <sup>1</sup>H NMR spectrum of Az-C<sub>8</sub> [CDCl<sub>3</sub> at 25 °C].

HOCH<sub>2</sub>-Tz-C<sub>8</sub>



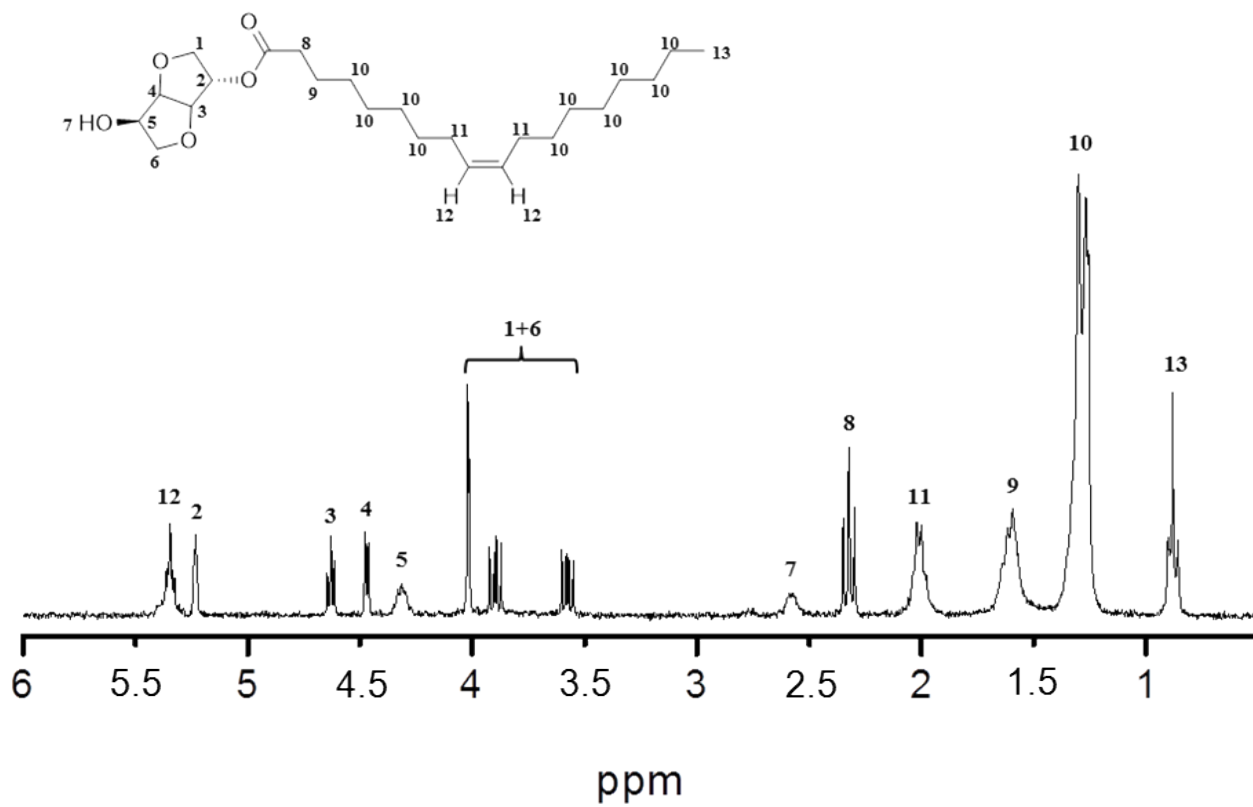
**Figure S2.** <sup>1</sup>H NMR spectrum of HOCH<sub>2</sub>-Tz-C<sub>8</sub> [CDCl<sub>3</sub> at 25 °C].

MSE-C<sub>12</sub>-Tz-C<sub>8</sub>



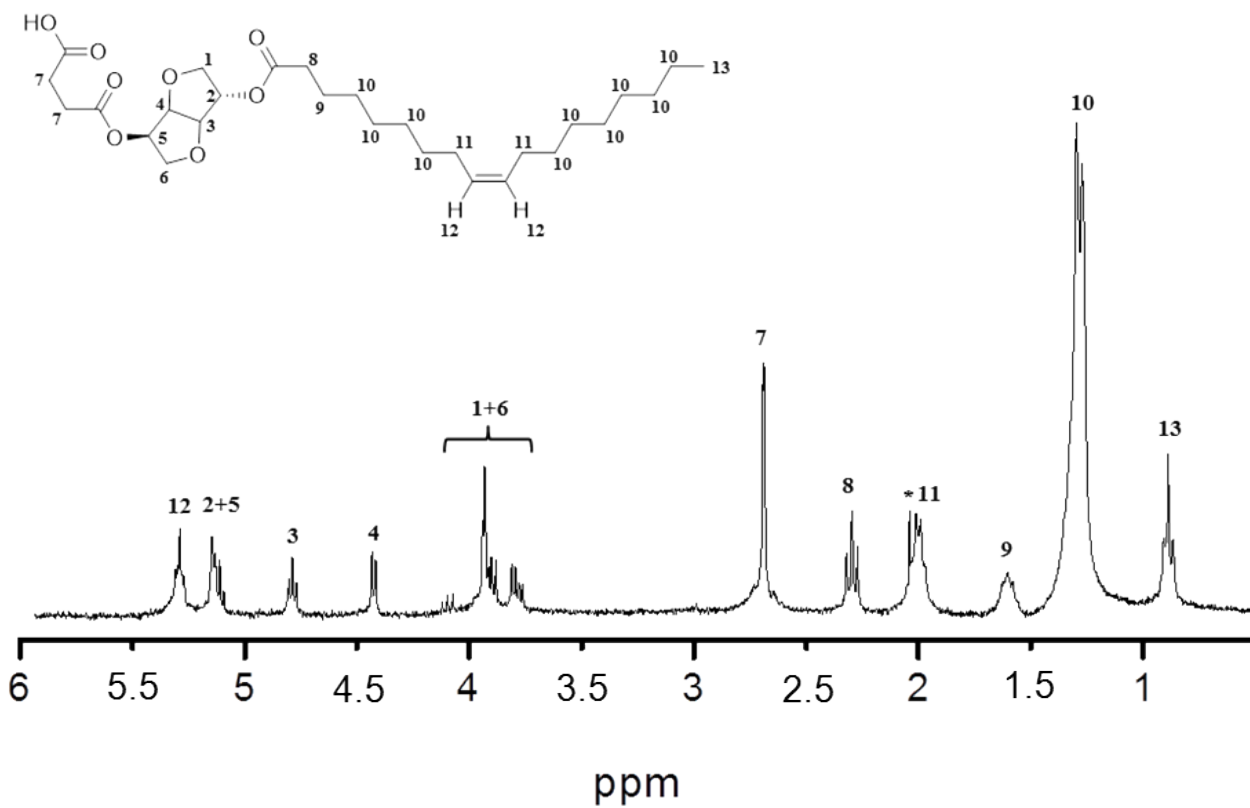
**Figure S3.** <sup>1</sup>H NMR spectrum of MSE-C<sub>12</sub>-Tz-C<sub>8</sub> [CDCl<sub>3</sub> at 25 °C].

OA-IS

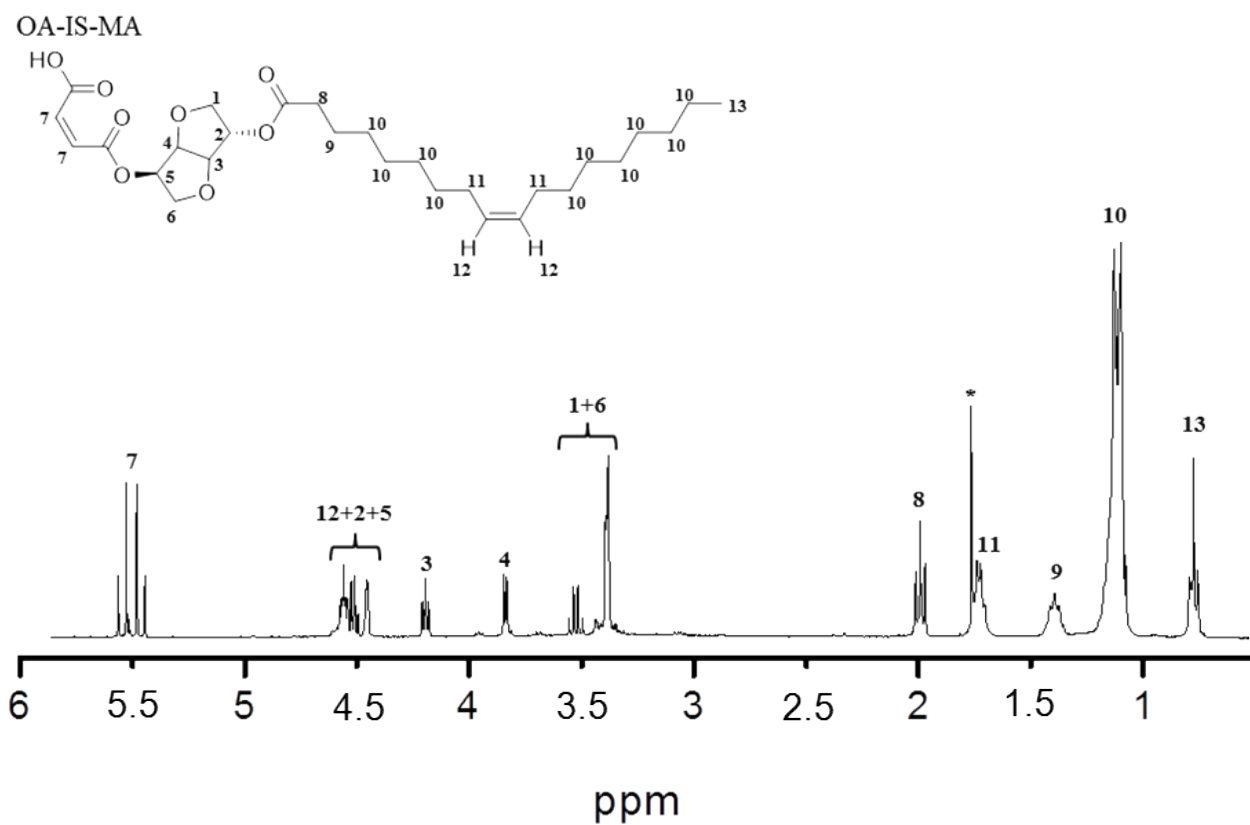


**Figure S4.** <sup>1</sup>H NMR spectrum of OA-IS [CDCl<sub>3</sub> at 25 °C].

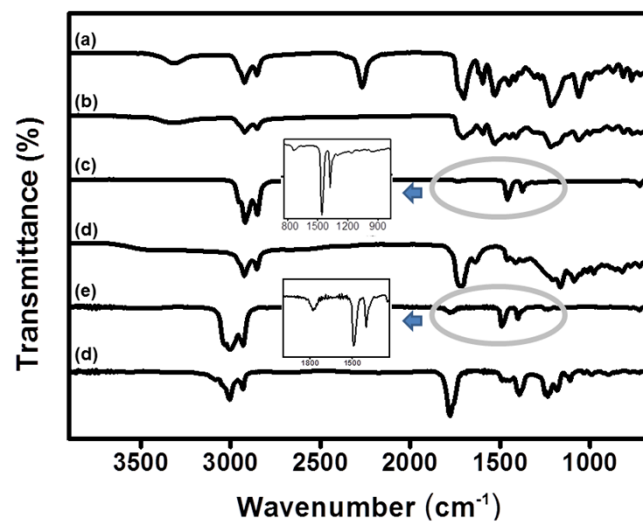
OA-IS-SA



**Figure S5.** <sup>1</sup>H NMR spectrum of OA-IS-SA [CDCl<sub>3</sub> at 25 °C], (\*) Ethyl Acetate.

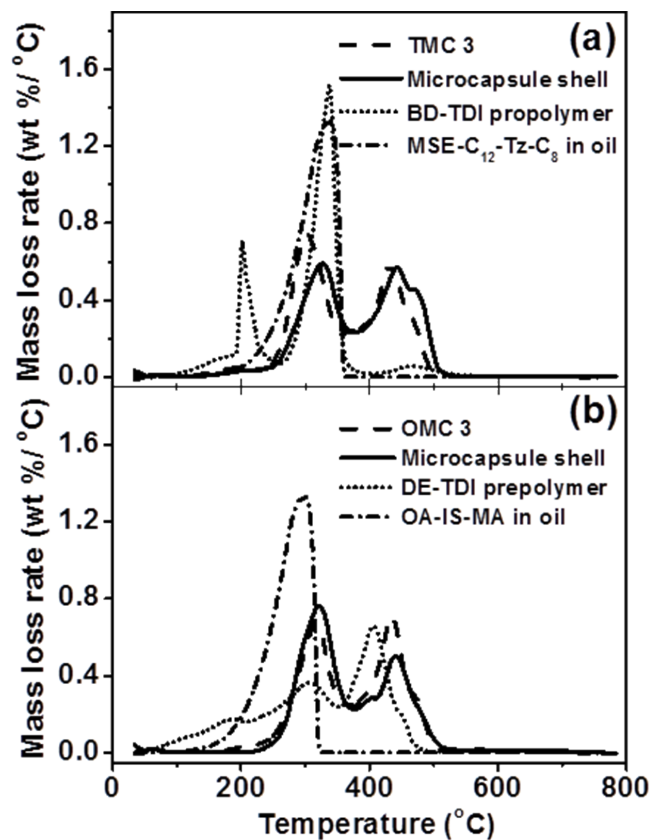


**Figure S6.**  $^1\text{H}$  NMR spectrum of OA-IS-MA [ $\text{CDCl}_3$  at  $25^\circ\text{C}$ ], (\*) Ethyl Acetate.

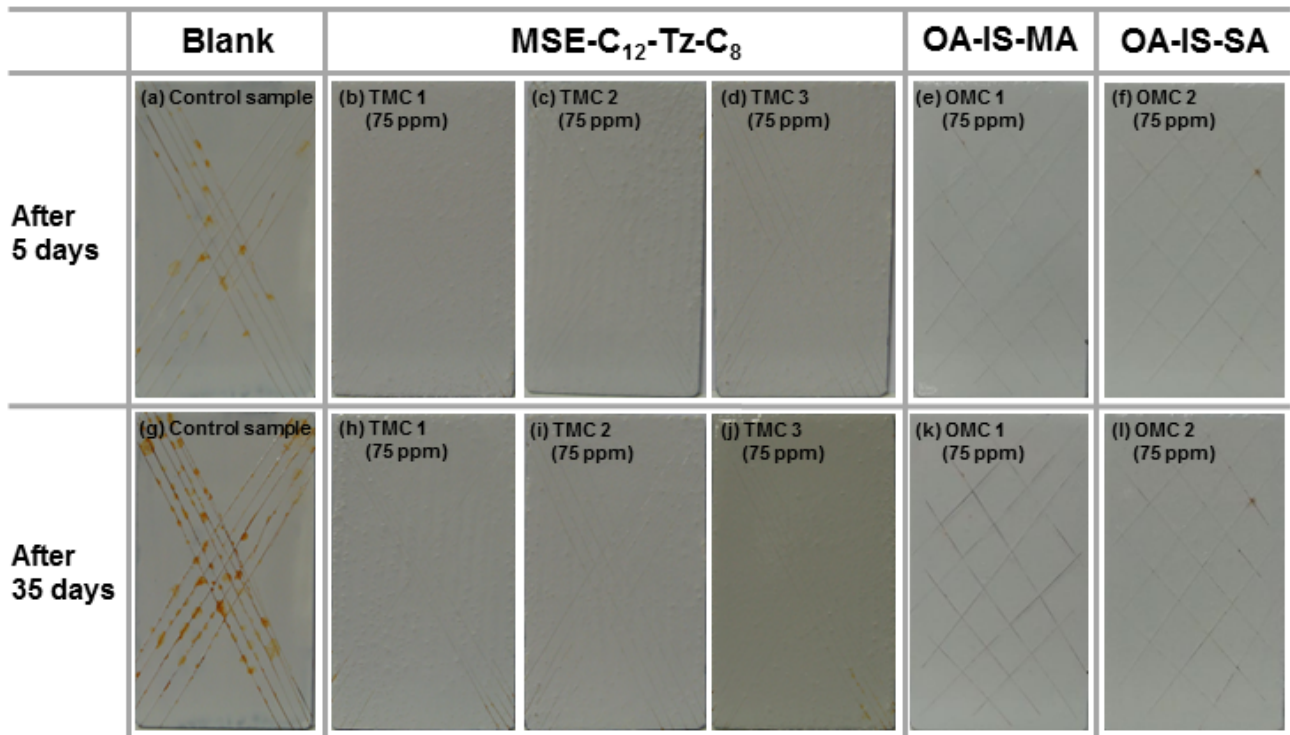


**Figure S7.** FTIR spectra of (a) DE-TDI prepolymer, (b) PU microcapsule shell, (c) released oleate derivative capsule core (OA-IS-MA) in oil, and (d) pure oleate derivative corrosion inhibitor (OA-IS-MA), (e) released oleate derivative capsule core (OA-IS-SA) in oil, and (f) pure oleate derivative corrosion inhibitor (OA-IS-SA).

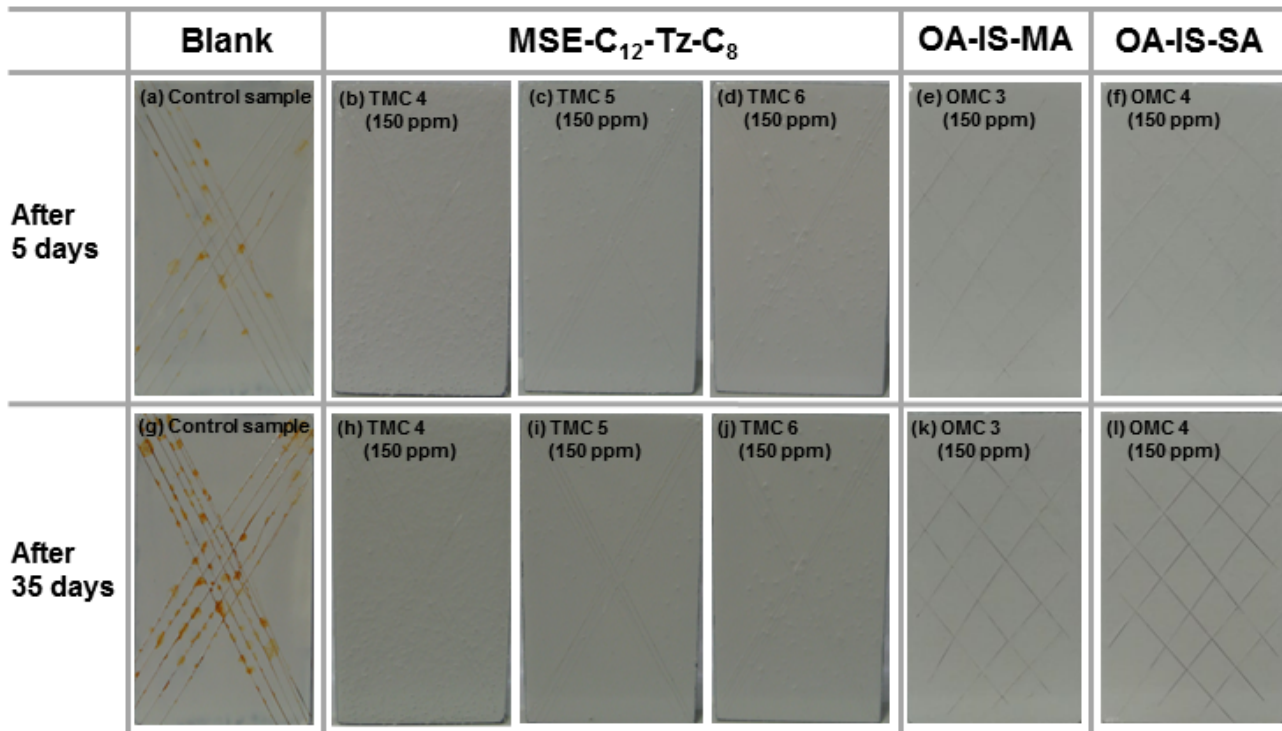




**Figure S8.** (a) Derivatives of TGA data of the prepared microcapsules (TMC 3), capsule shell, BD-TDI prepolymer, and MSE-C<sub>12</sub>-Tz-C<sub>8</sub> in oil. (b) Derivatives of TGA data of the filled capsules (OMC 3), the capsule shell, DE-TDI prepolymer, and OA-IS-MA in oil. All experiments were performed at heating rate of 20 °C/min in an N<sub>2</sub> environment.



**Figure S9.** Corrosion test results for self-healing performances of painted-coated panels loaded with anticorrosion agents (75 ppm) filled microcapsules (MSE-C<sub>12</sub>-Tz-C<sub>8</sub>, OA-IS-MA, and OA-IS-SA) and only oil filled capsules (blank) after 5 and 35 days, respectively.



**Figure S10.** Corrosion test results for self-healing performances of painted-coated panels loaded with anticorrosion agents (150 ppm) filled microcapsules (MSE-C<sub>12</sub>-Tz-C<sub>8</sub>, OA-IS-MA, and OA-IS-SA) and only oil filled capsules (blank) after 5 and 35 days, respectively.