



Supporting Information

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Sequential Self-Polymerization of Phenolic Compounds with Alkanedithiol Linkers as a Surface-Independent and Solvent-Resistant Surface Functionalization Strategy

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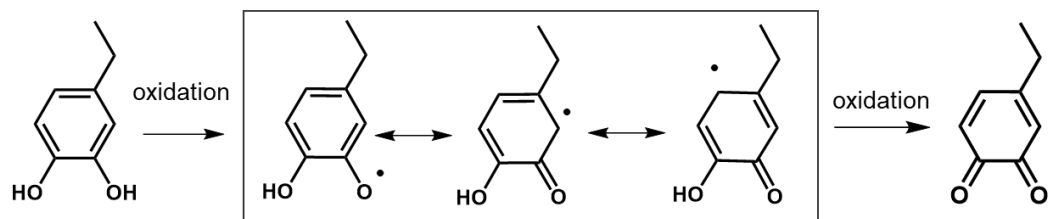
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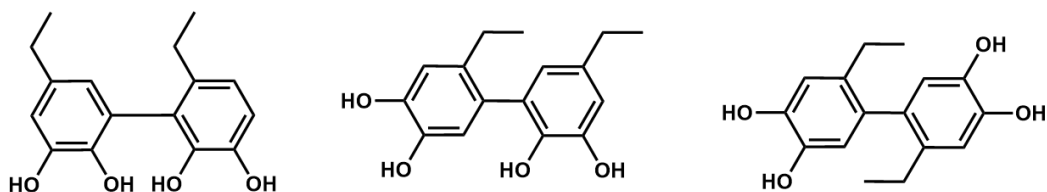
†These authors contributed equally to this work.

Figure S1

A Oxidation states



B Aryl-aryl coupling



C C-O-C coupling

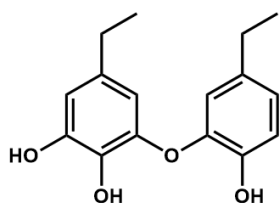


Figure S1 **A** Various oxidation states of 4-ethylcatechol and **B** the proposed structures of its dimer through aryl-aryl coupling. **C** The formation of C-O-C bonds occurs under certain conditions, for instance, in the presence of oxidizing agents such as sodium periodate or when a nitro group is situated at the 6-position.^{[1][2]}

Figure S2

¹H NMR Analysis of PEC and PODT

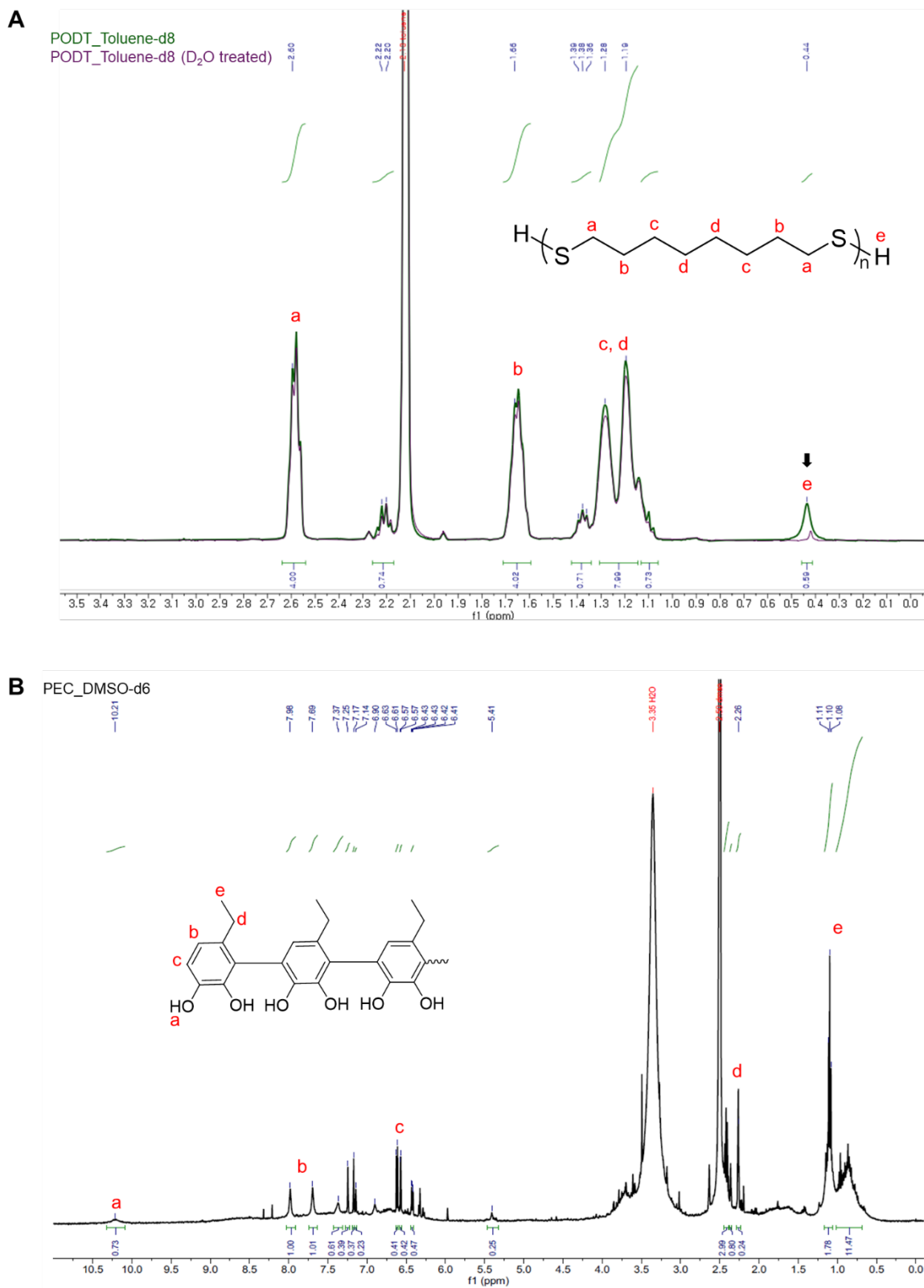


Figure S2 A ¹H NMR Spectrum of PODT. The thiol proton of PODT at 0.44 ppm is replaced with deuterium through addition of D₂O. **B** ¹H NMR Spectrum of PEC.

Figure S3

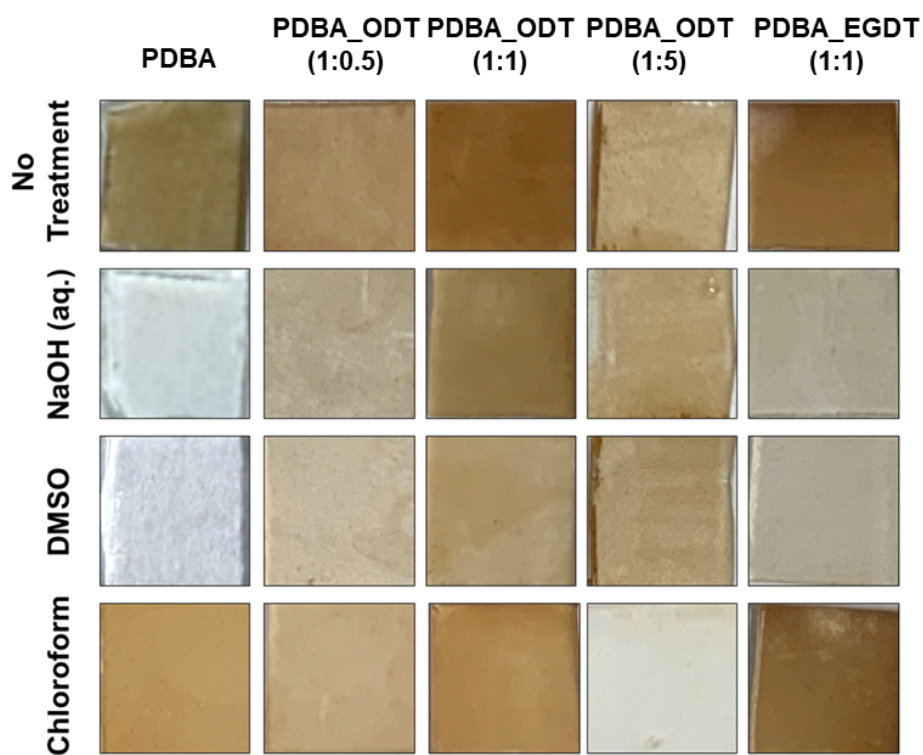


Figure S3 Stability test results of PDBA, PDBA_ODT, and PDBA_EGDT coatings on glass substrates with different ratio of monomer to linker in NaOH(aq.), DMSO and chloroform.

Figure S4

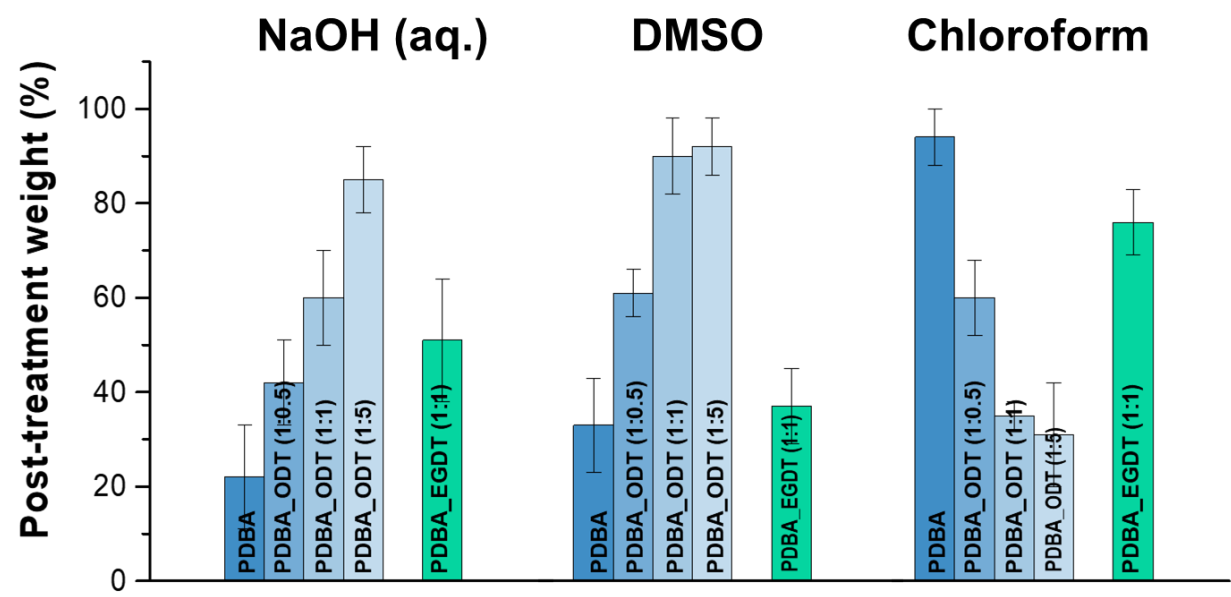


Figure S4 Stability test results of PDBA, PDBA_ODT, and PDBA_EGDT coatings with different ratio of monomer to linker in NaOH(aq.), DMSO and chloroform.

Figure S5

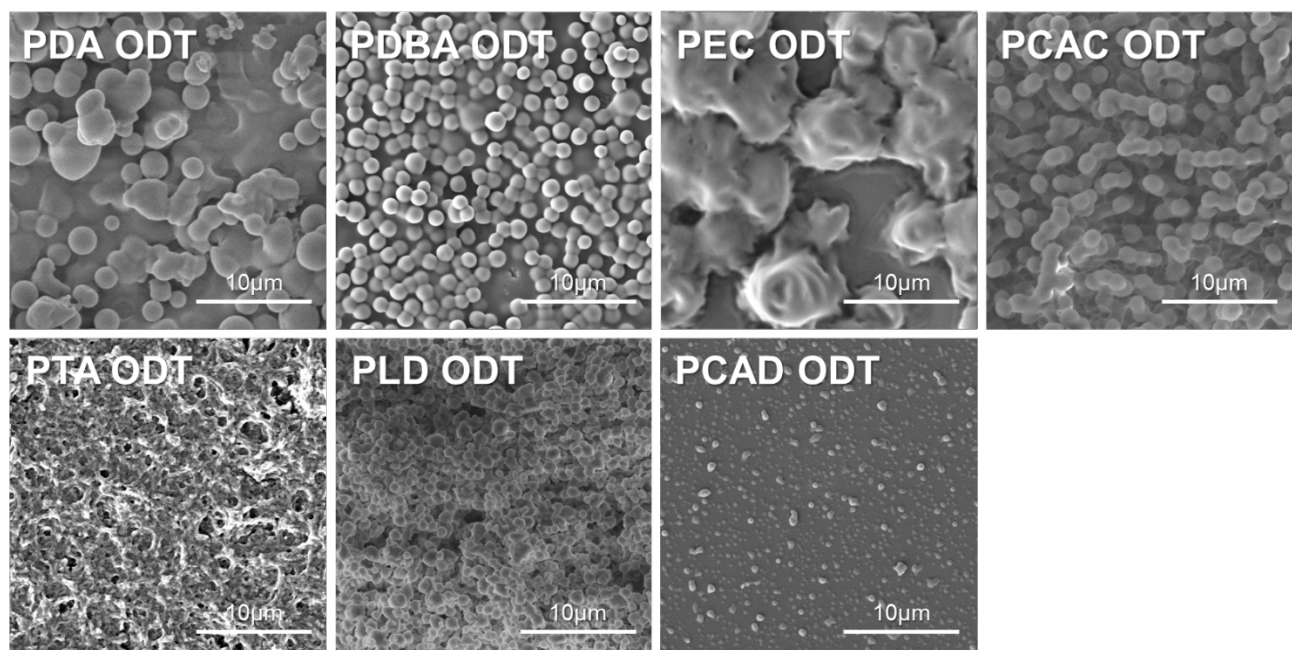


Figure S5 SEM images showing the copolymer coating on glass substrates.

Reference

- [1] J. Yang, V. Saggiomo, A. H. Velders, M. A. Cohen Stuart, M. Kamperman, *PLoS One* **2016**, *11*, e0166490.
- [2] A. Palumbo, A. Napolitano, A. Carraturo, G. L. Russo, M. d'Ischia, *Chem. Res. Toxicol.* **2001**, *14*, 1296-1305