

Figure S1. UV-Vis spectrum of uncured thiol-ene resin.

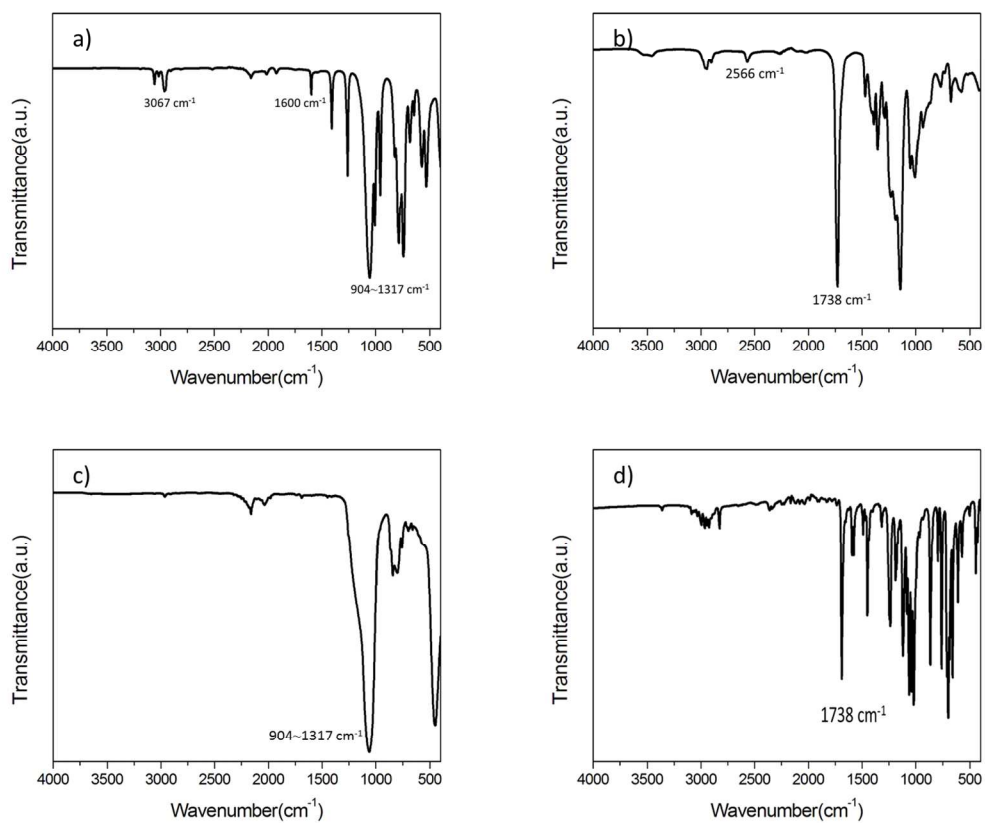
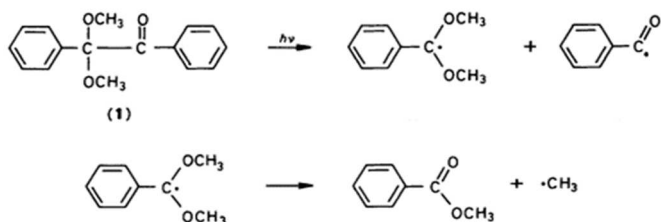


Figure S2. FTIR spectrum of individual resin components. a) TMTVSi. b) PETMP. c) Hydrophobic silica nanoparticles (Aerosil 812S). d) DMPA.



Scheme S1. Mechanism of initiating process of DMPA¹⁻².

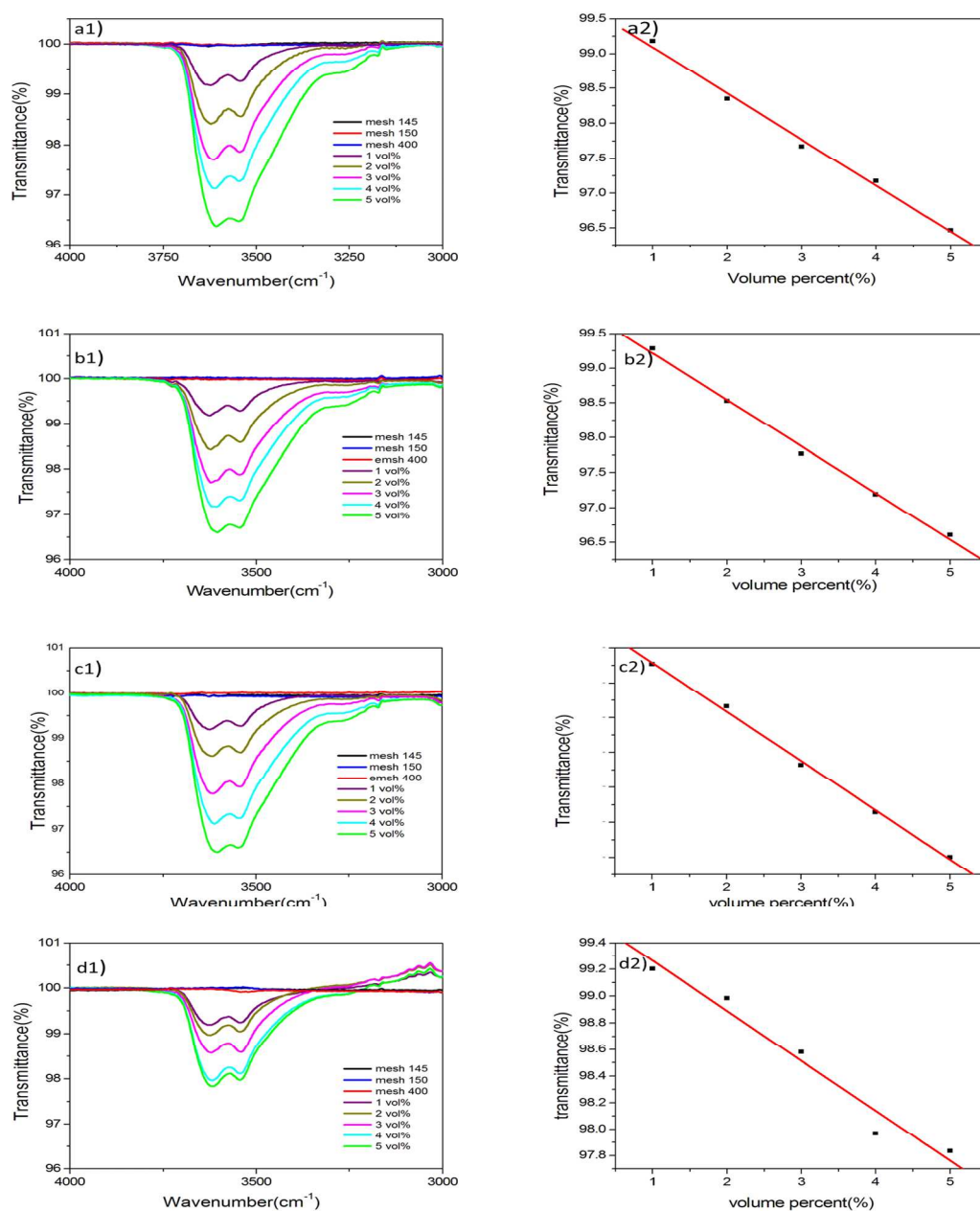


Figure S3. a1~d1) IR spectrum of water/oil separation product in ACN a2~d2) Calibration curve of IR spectrum for different water concentraion in ACN. a) Cooking oil. b) Hexane. c) Kerosene. d) Crude oil.

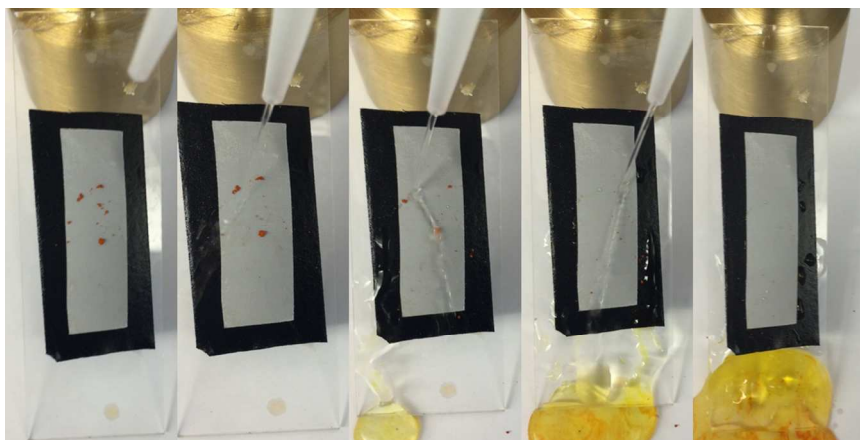


Figure S4. Demonstration experiment of self-cleaning effect where Dark yellow powder on the mesh removed by the water droplet.

Mesh number	Contact Angle
145	158.3±2.3
150	156.4±4.2
400	157.2±3.1

Table S1. Contact angles of meshes with different mesh number after kept at 300 °C for 50 min.

References:

- (1) Fischer, H.; Baer, R.; Hany, R.; Verhoolen, I.; Walbinder, M. 2,2-Dimethoxy-2-Phenylacetophenone: Photochemistry and Free Radical Photofragmentation. *J. Chem. Soc., Perkin Trans.* 1990, 2, 787-798
- (2) Hageman, H. J. Photoinitiators for FreeRadical Polymerization. *Prog. Org. Coat.* 1985,13, 123,