

## Supplementary Materials

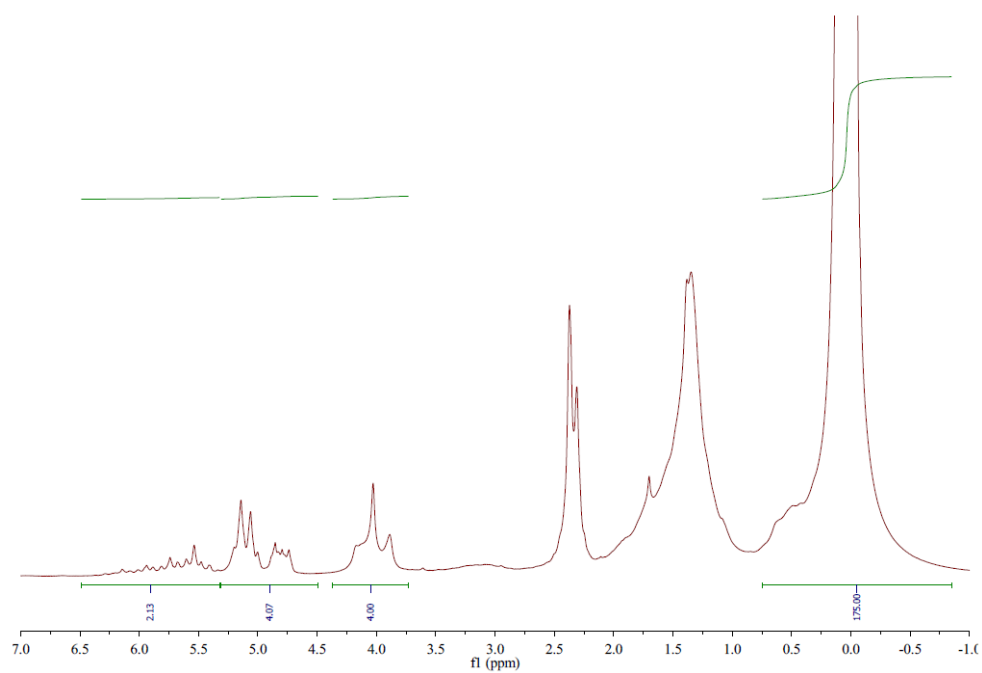


Figure S1 : NMR<sup>1</sup>H of PDMS after Steglich esterification and purification.

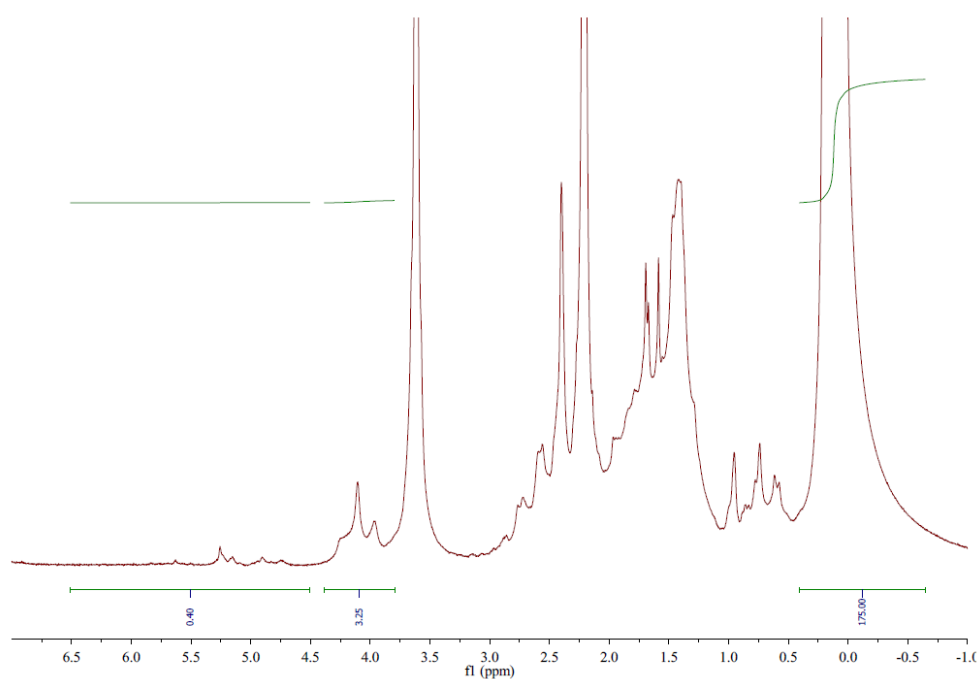


Figure S2 : NMR<sup>1</sup>H of PDMS after thiol-ene reaction and purification.

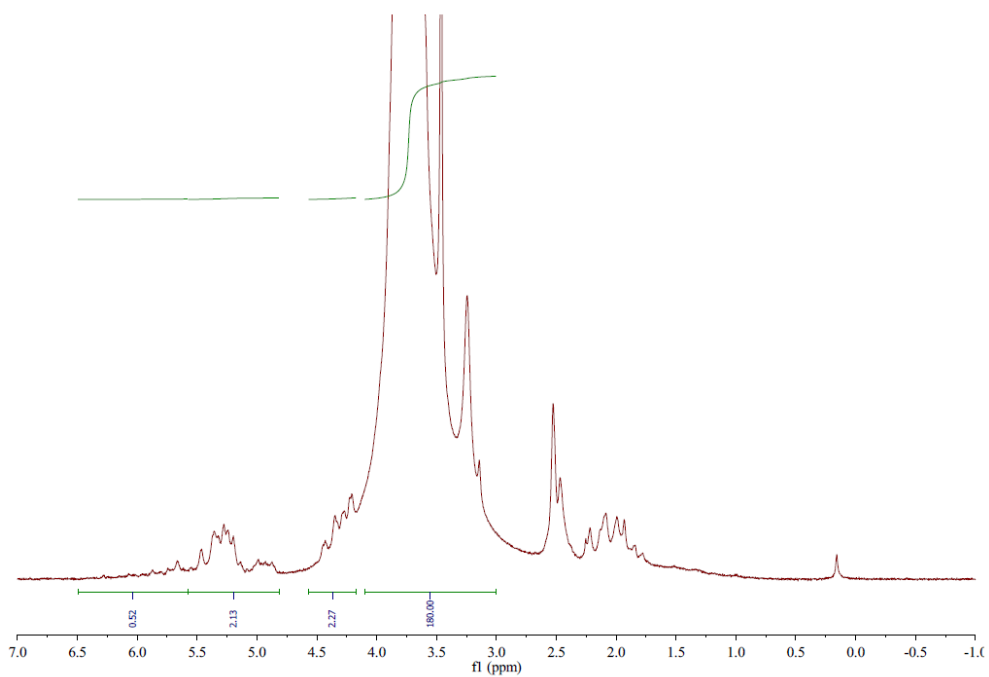


Figure S3 : NMR<sup>1</sup>H of PEG (45-Alk8-TMS) after Steglich reaction and purification.

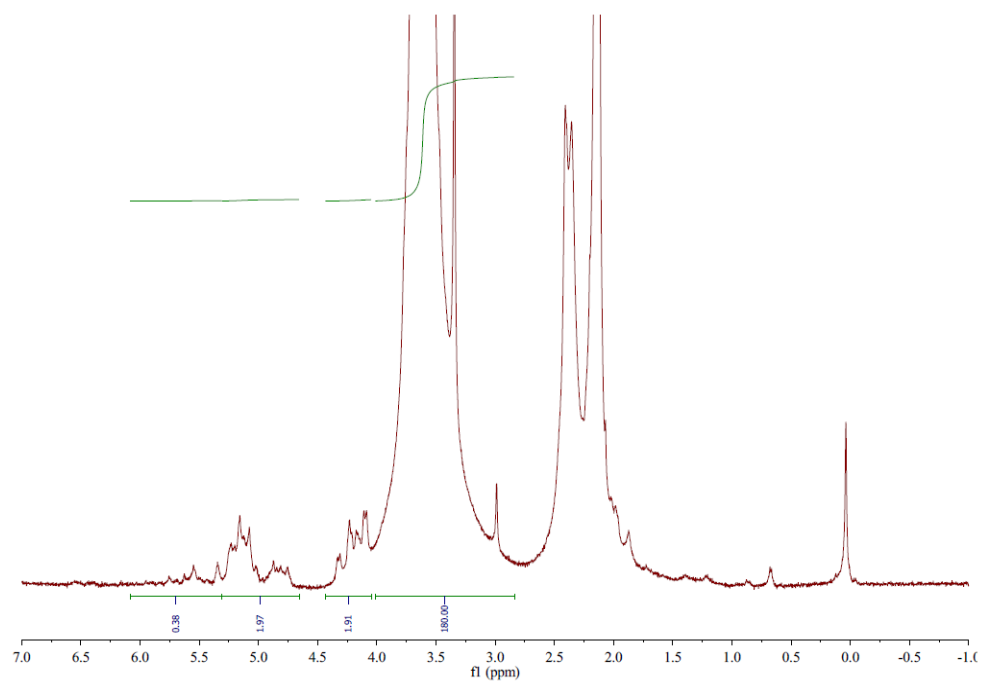


Figure S4 : NMR<sup>1</sup>H of PEG (45-Alk14-TMS) after Steglich reaction and purification.

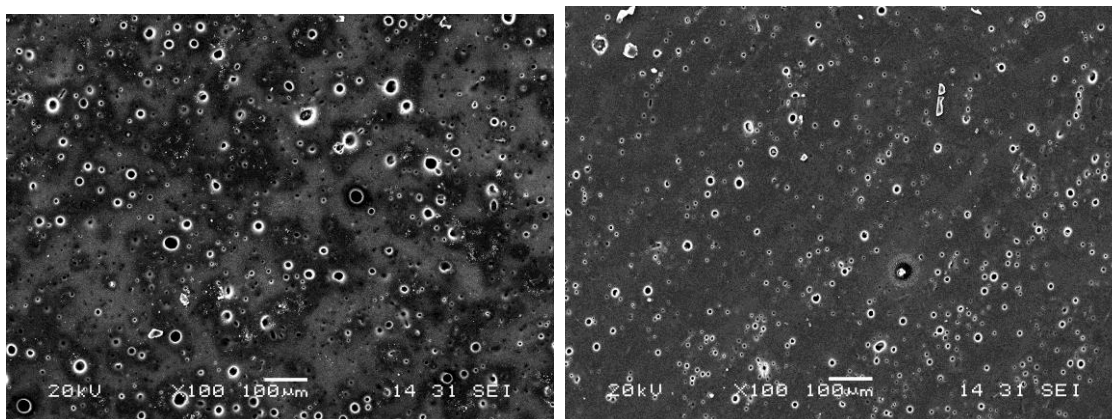


Figure S5 : Scanning Electron Microscopy. Homogeneity of PDMS<sub>28</sub> methoxy ended cross-linked film with hydrophilic compounds incorporated (a) *45-OH* (b) *PDMS-SiOH*.

Table S1: Formulations of different coatings. Each sample is named as the PEG additives used for their formulation. Weight percentage are function of PDMS matrix weight.

Samples	Solvent (Ethanol)	Catalyst (H <sub>3</sub> PO <sub>4</sub> )	PEG additives	Time of cross linking
Reference 6-TMS 9-OH				
PDMS-SiOH PDMS-TMS 45-OH 45-Alk8-TMS 45-Alk14-TMS	50wt%	1wt%	10wt%	24h at 20°C then 48h at 30°C