

## Supporting Information

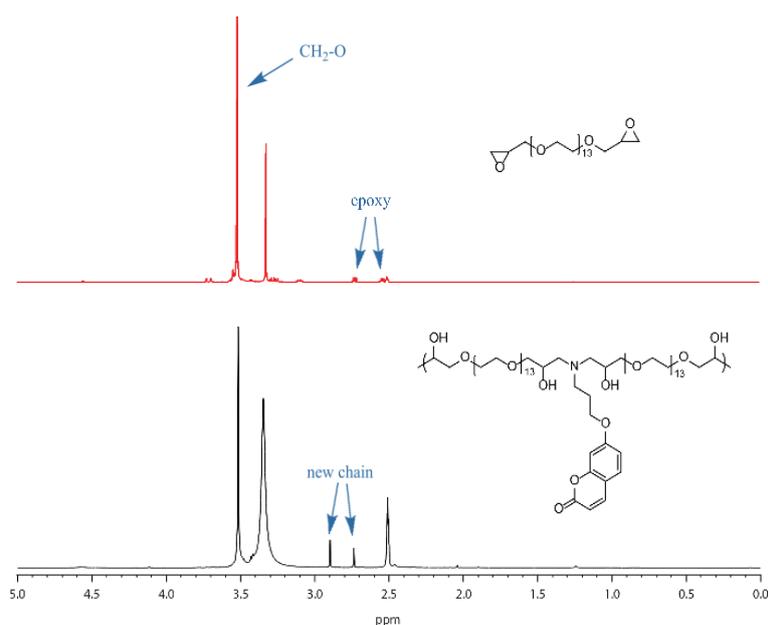
### Improvement and tuning of the performance of light-healable polymers by variation of the monomer content

T. Hughes<sup>a</sup>, G. P. Simon<sup>b</sup> and K. Saito<sup>a</sup>

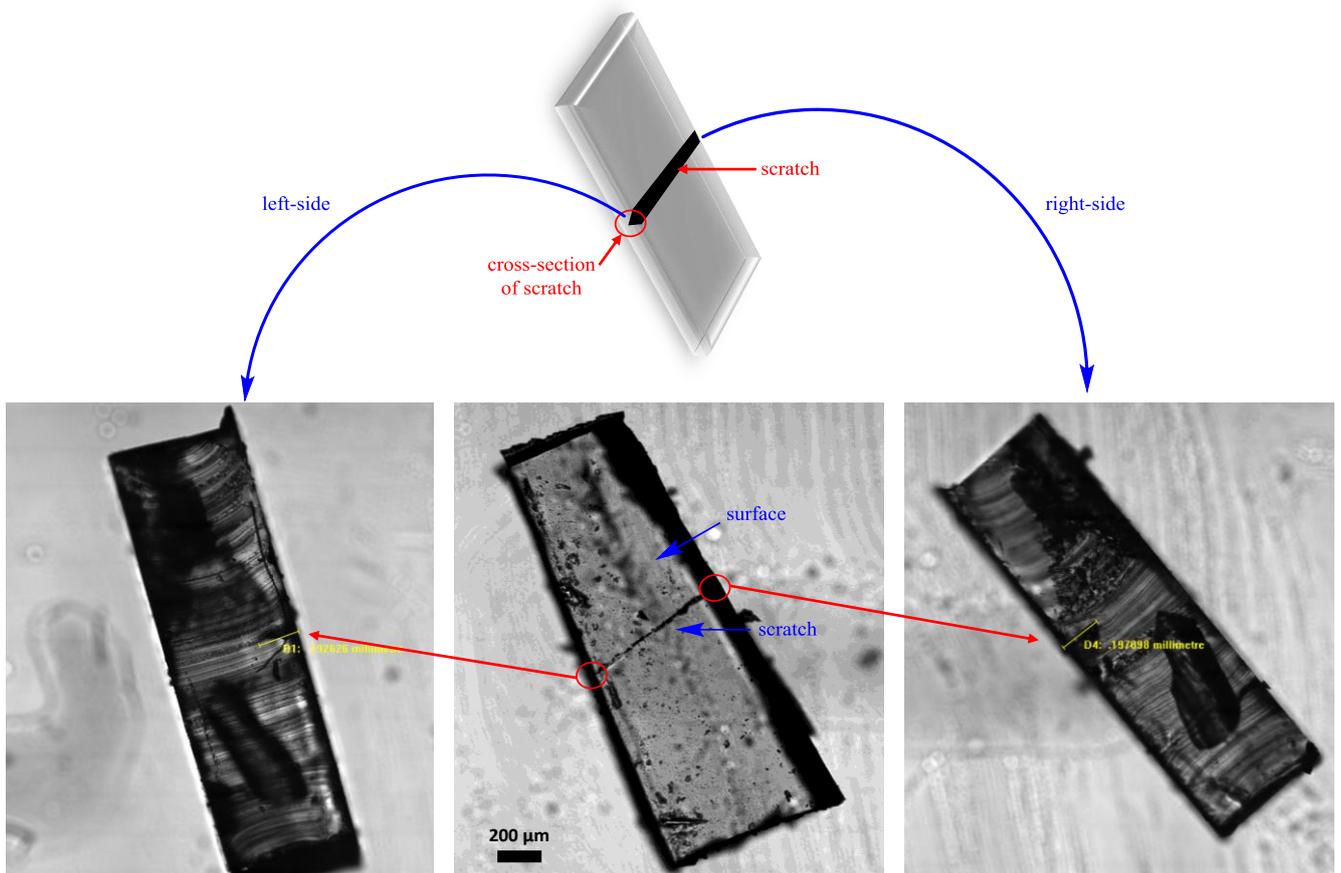
<sup>a</sup> School of Chemistry, Monash University, Clayton, VIC 3800, Australia

<sup>b</sup> Department of Materials Science and Engineering, Monash University, Clayton, VIC 3800, Australia

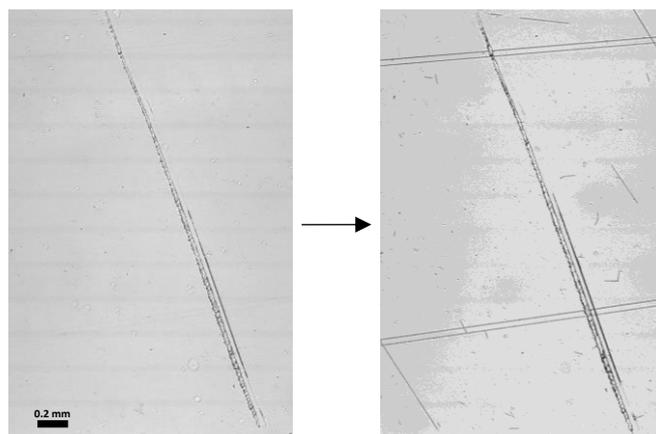
Corresponding authors: [kei.saito@monash.edu](mailto:kei.saito@monash.edu), [george.simon@monash.edu](mailto:george.simon@monash.edu)



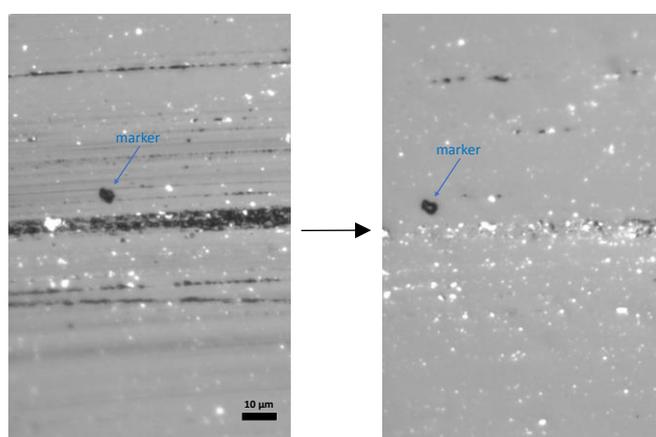
**Figure S1:** <sup>1</sup>H NMR of the epoxy monomer PDE (top) and the soluble polymer chains from the solubility test (bottom) of APCD/PDE, both in d<sup>6</sup>-DMSO.



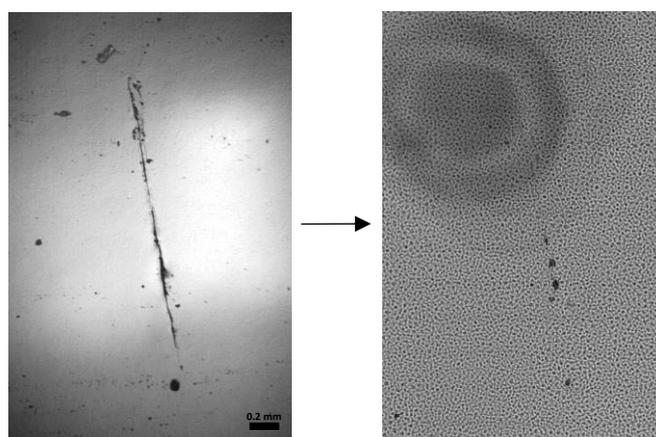
**Figure S2:** OM images of an 18 μm scratch on the surface (middle) of APCD/PDE and the cross-section of the sample observed from the left side (left) and the right-side (right) showing a uniform scratch depth of ca. 195 μm.



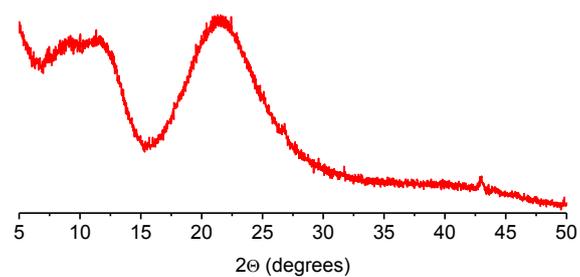
**Figure S3:** OM images of the unsuccessful healing attempt of a 14  $\mu\text{m}$  scratch on the surface of polymer APCD/BDE before (left) and after (right) irradiation.



**Figure S4:** OM images of the elevated temperature healing of a 12  $\mu\text{m}$  scratch on the surface of polymer APCD/PDE before (left) and after (right) irradiation.



**Figure S5:** OM images of the elevated temperature healing of an 11  $\mu\text{m}$  scratch on the surface of polymer APCD/BP50 before (left) and after (right) irradiation.



**Figure S6:** Powder x-ray diffraction pattern of the crosslinked polymer APCD/PDE showing an amorphous structure. The sample was analysed on a Bruker D8 Advance Eco diffractometer using a Cu  $K_{\alpha}$  radiation source between  $2\theta$  angles of  $5^{\circ}$  –  $50^{\circ}$ .