Journal of Research in Health Sciences
ISSN: 2228-7809 | https://jrhsjournal.com

Development of Self-Healing EPDM Rubber Using Mechanically Enhanced Urea–Formaldehyde Microcapsules

Dr. James Whitaker[1]*, Dr. Emily Hughes[2]

[1]Department of Clinical Medicine, University of Cambridge, Cambridge, United Kingdom

[2]Division of Cardiology, King's College London, London, United Kingdom

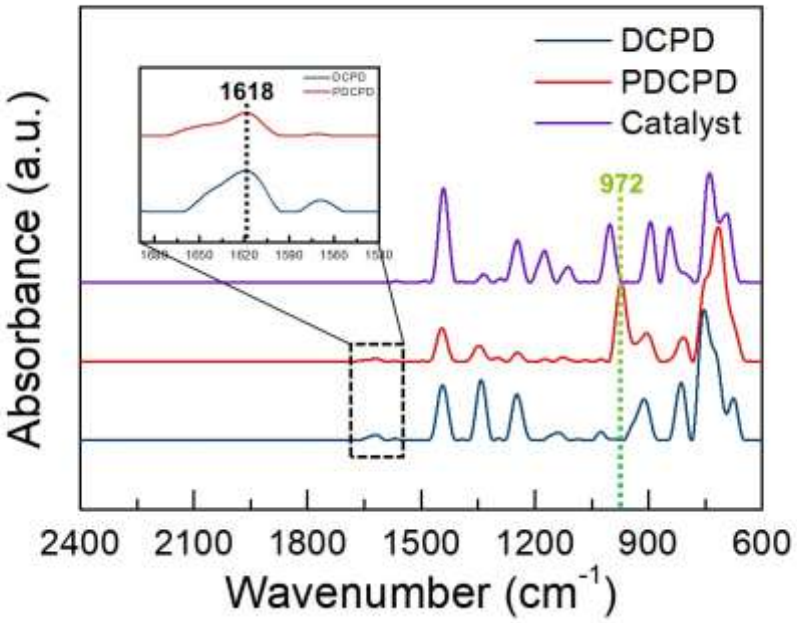

Figure S1. Normalized absorption spectra of the neat DCPD, the polymerized DCPD (PDCPD), and the catalyst.

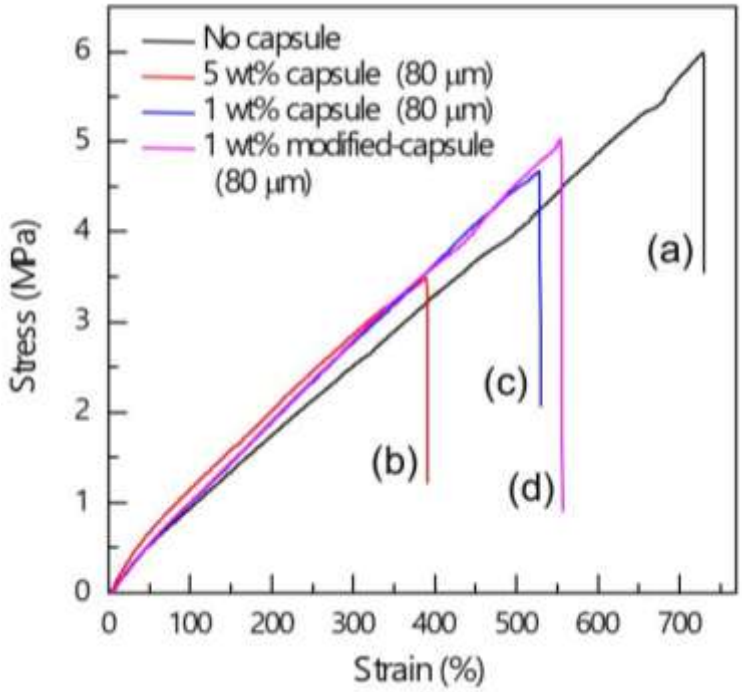

Figure S2. Tensile stress-strain curves of rubber composites embedded with 80 μm size microcapsules: (a) the neat rubber, (b) the rubber composite with 5wt% capsules, (c) rubber composite with 1wt% capsules, (d) rubber composite with 1wt% surface-modified capsules.

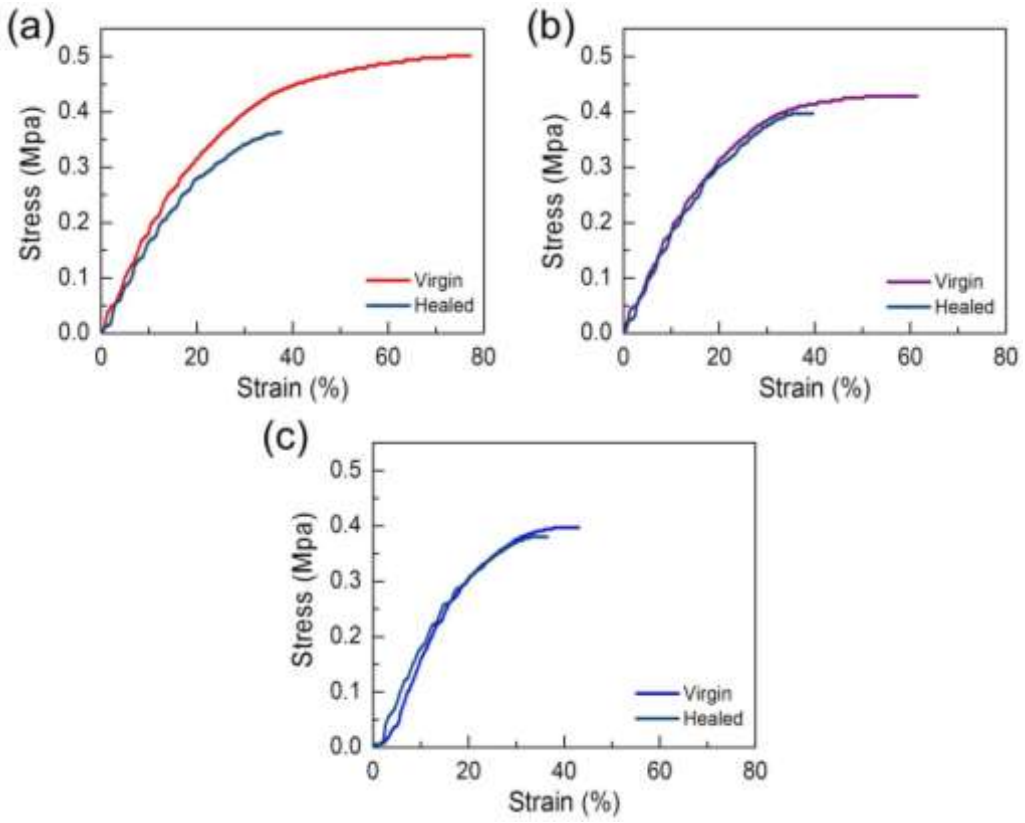

Figure S3. Tensile stress-strain curves of the virgin and the healed EPDM/microcapsule rubber composites with the varied amount of the mechanically-enhanced UF microcapsules: (a) EPDM_5SC, (b) EPDM_10SC, and (c) EPDM_20SC.

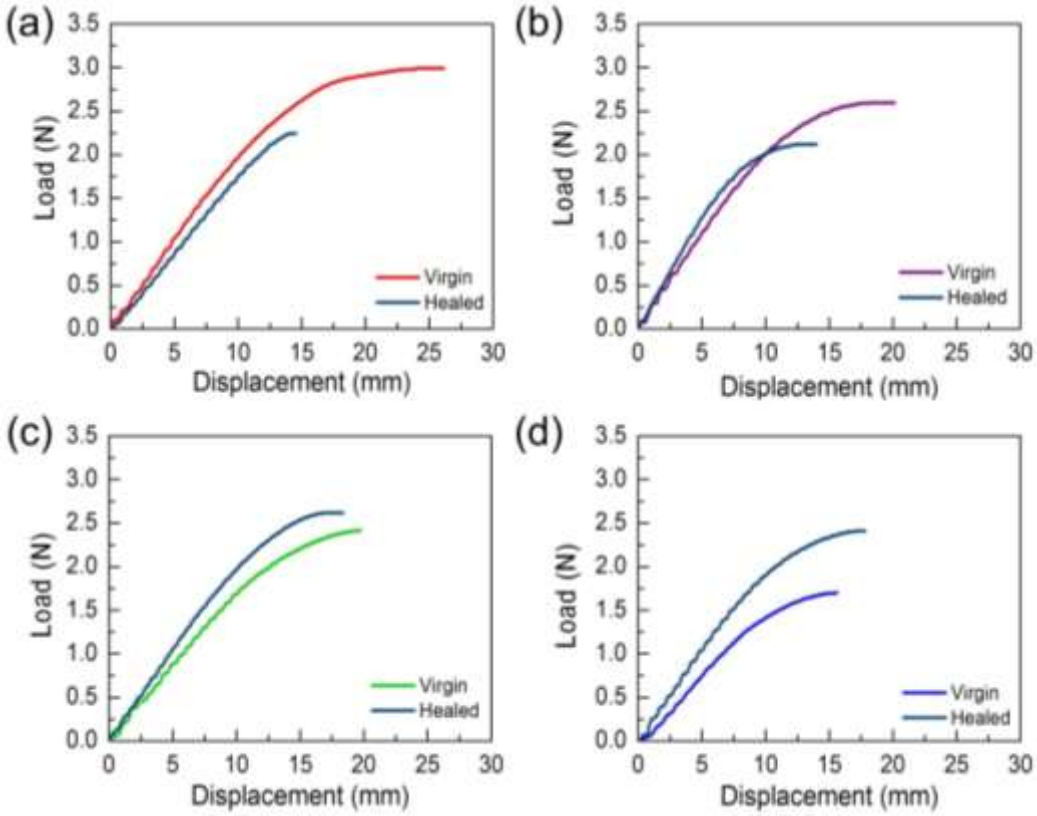

Figure S4. Load-displacement curves of the virgin and the healed EPDM/microcapsule rubber composites with the varied amount of the mechanically-enhanced UF microcapsules: (a) EPDM_5SC, (b) EPDM_10SC, (c) EPDM_15SC, and (d) EPDM_20SC.