

Supporting Information

Self-Healing Label Materials Based on Photo-Crosslinkable Polymeric Films with Dynamic Surface Structures

Xia-Chao Chen, Wei-Pin Huang, Ke-Feng Ren,* and Jian Ji*

*MOE Key Laboratory of Macromolecule Synthesis and Functionalization, Department of Polymer
Science and Engineering, Zhejiang University, Hangzhou 310027, P. R. China*

E-mail: Renkf@zju.edu.cn, Jijian@zju.edu.cn

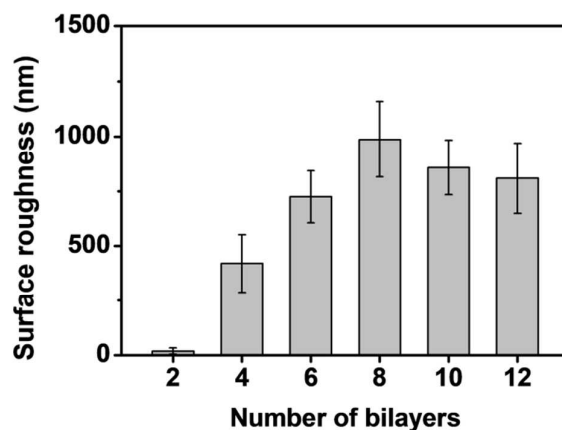


Figure S1. Arithmetical mean roughness of PEI/PAA-N₃ films as a function of the number of bilayers.

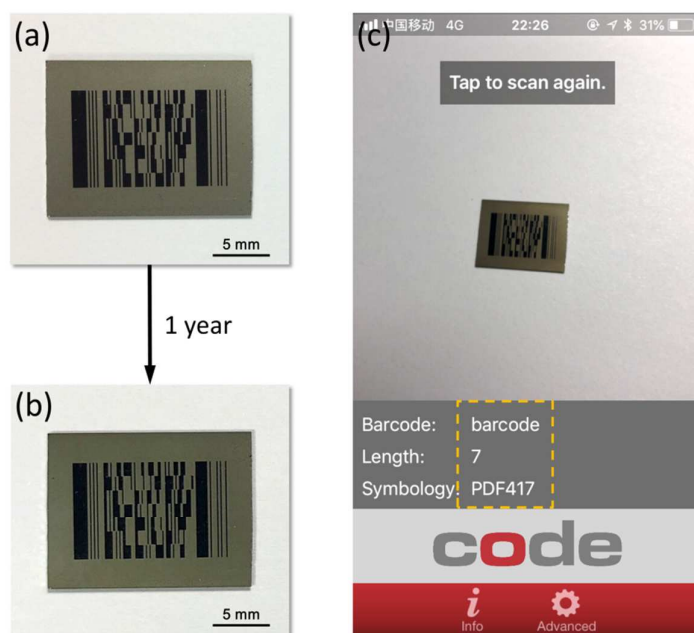


Figure S2. (a and b) Optical images showing the appearance of a (PEI/PAA-N₃)₁₀ film encoded with a PDF417 barcode, before and after being kept for one year under room temperature and normal humidity. (c) The encoded film in Image b was scanned and decoded successfully using a barcode reading application (CortexScan) on a smartphone. The reading result is marked with dotted box in Image c.

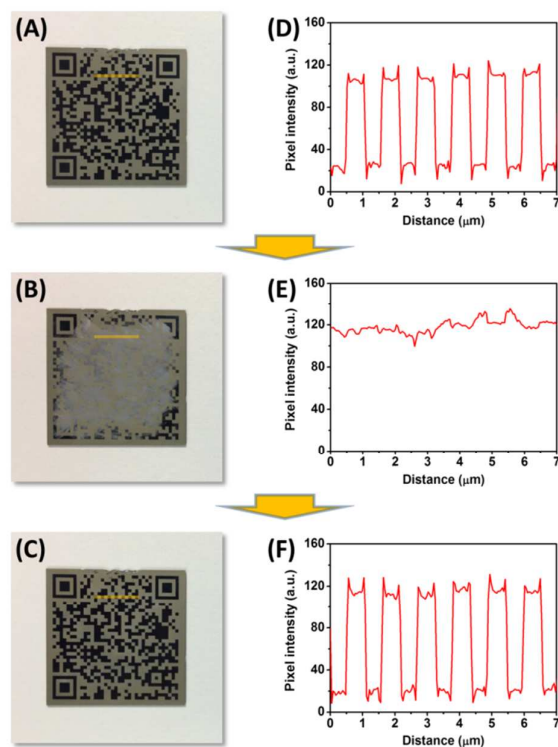


Figure S3. (A-C) Optical images showing the recovery process of a $(\text{PEI/PAA-N}_3)_{10}$ film, which was encoded with a QR code. (D-F) Horizontal scans of pixel intensity across the marked lines in Image A, B, and C. It can be found that the color contrast between different regions on the film was changed after it was scratched and can be recovered after the healing process.

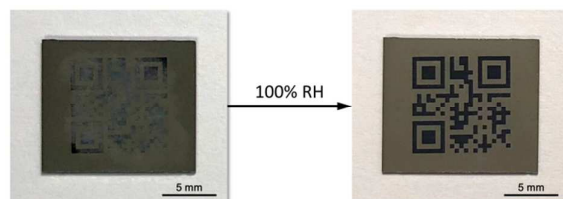


Figure S4. Self-healing of an encoded $(\text{PEI/PAA-N}_3)_{10}$ film after it was kept for one year under room temperature and normal humidity.

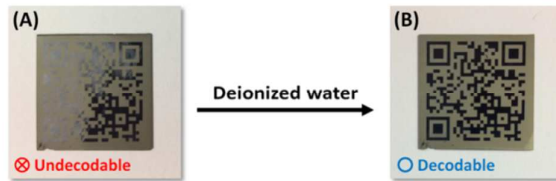


Figure S5. Optical images showing the water-enabled recovery of a $(\text{PEI/PAA-N}_3)_{10}$ film, which was encoded with a QR code.