

Supporting Information

Self-Restoring Three-dimensional Porous Structure Capacitive Pressure Sensor Using Shape Memory Polymer

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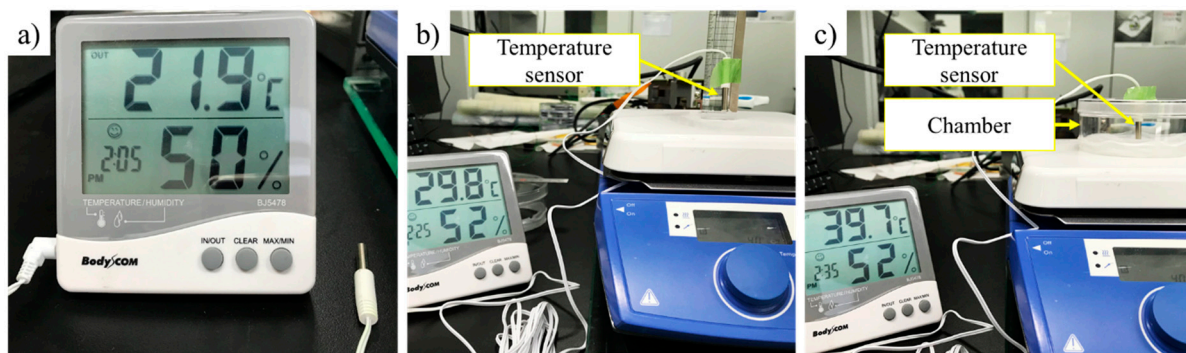


Figure S1. Specially designed chamber to maintain 40 °C. (a) Room temperature. (b) Sensor without the chamber at approximately 30 °C when the hotplate is set at 40 °C. The temperature sensor is fixed at the same height as the chamber by using a ruler. (c) In the chamber, the temperature is approximately 40 °C when the hotplate is set at 40 °C.

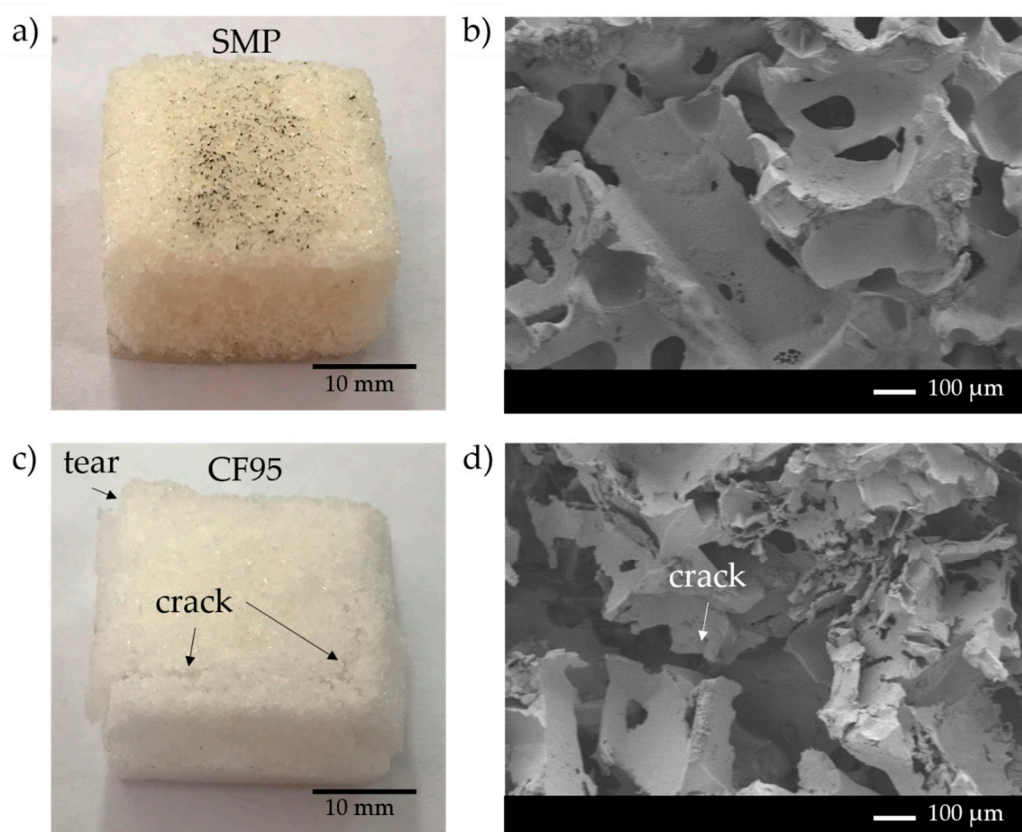


Figure S2. Structural images of the SMP and CF95 porous structures (all images are after the 100-cycle loading test). (a) Photograph of the SMP porous structure: no significant change to the structure is observed. (b) SEM image of the SMP porous structure. (c) Photograph of the CF95 porous structure: some cracks and tears are evident on the structure. (d) SEM image of the CF95 porous structure: microcracks are evident in the structure.

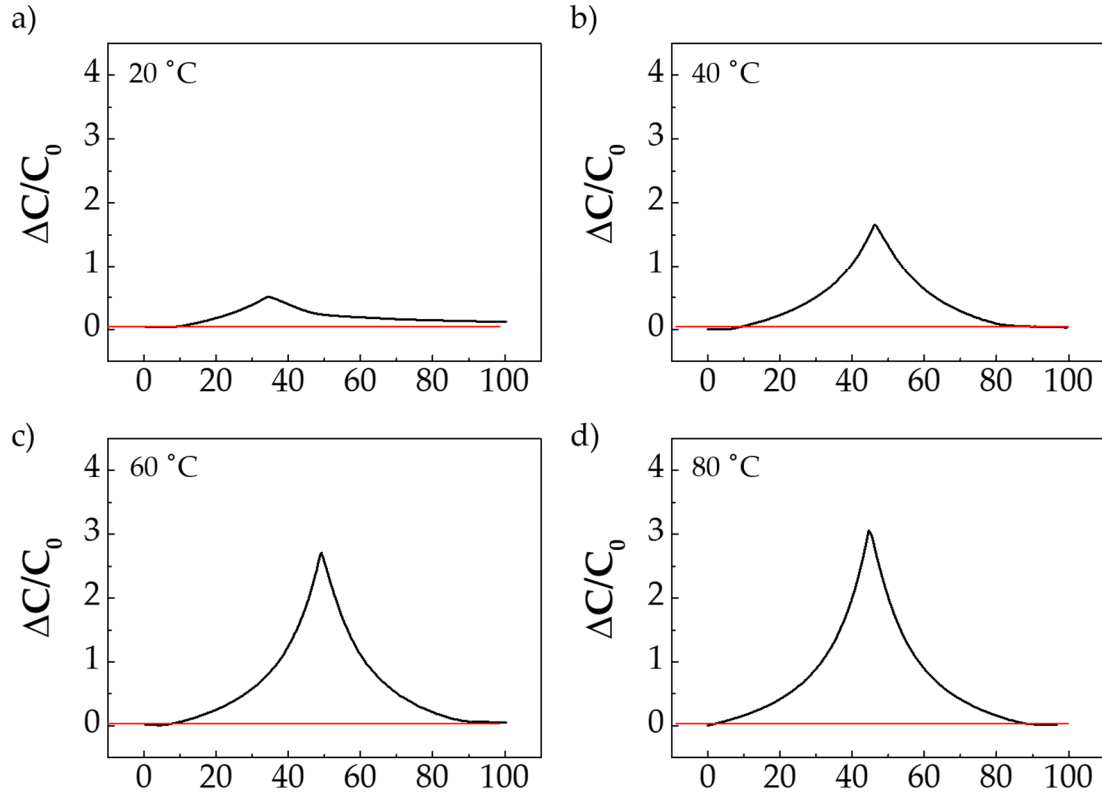


Figure S3. SMP porous structure sensor performances at 500 kPa according to temperature. (a) Sensor performance at 20 °C: without recovery ability. It cannot recover to initial state. (b) Sensor performance at 40 °C: the response of sensor is perfectly symmetric, and the sensitivity at the same compressive load is more than 3 times higher than it at 20 °C. (c) Sensor performance at 60 °C: the response of sensor is similar with the result at 40 °C. (d) Sensor performance at 80 °C.