Supplementary Information

Ambient-Dried Highly Flexible Copolymer Aerogels and their Nanocomposites with Polypyrrole for Thermal Insulation, Separation, and Pressure Sensing

Guoqing Zu, [1,*] *Kazuyoshi Kanamori*, [2,*] *Ayaka Maeno*, [3] *Hironori Kaji*, [3] *Kazuki Nakanishi* [2], *Jun Shen*[4]

[1]School of Materials Science and Engineering, Tongji University, Shanghai 201804, P. R. China

[2]Department of Chemistry, Graduate School of Science, Kyoto University, Kitashirakawa, Sakyo-ku, Kyoto 606-8502, Japan

[3]Institute for Chemical Research, Kyoto University Gokasho, Uji, Kyoto 611-0011, Japan

[4]Shanghai Key Laboratory of Special Artificial Microstructure Materials and Technology, Pohl Institute of Solid State Physics, Tongji University, Shanghai 200092, P. R. China

*Corresponding authors：

E-mail: guoqingzu@tongji.edu.cn (G. Zu),

kanamori@kuchem.kyoto-u.ac.jp (K. Kanamori)

This PDF file includes:

Captions for Movies S1 to S4

Figures S1 to S8

Other Supplementary Materials for this manuscript include the following:

Movies S1 to S4

Movie list:

Movie S1. High compression flexibility of VT21P shown by hand compression.

Movie S2. High bending flexibility of VT51 shown by hand bending.

Movie S3. Efficient separation of *n*-octane and water with VT21.

Movie S4. Strain-sensitive conductivity of VT21P.

Figures:

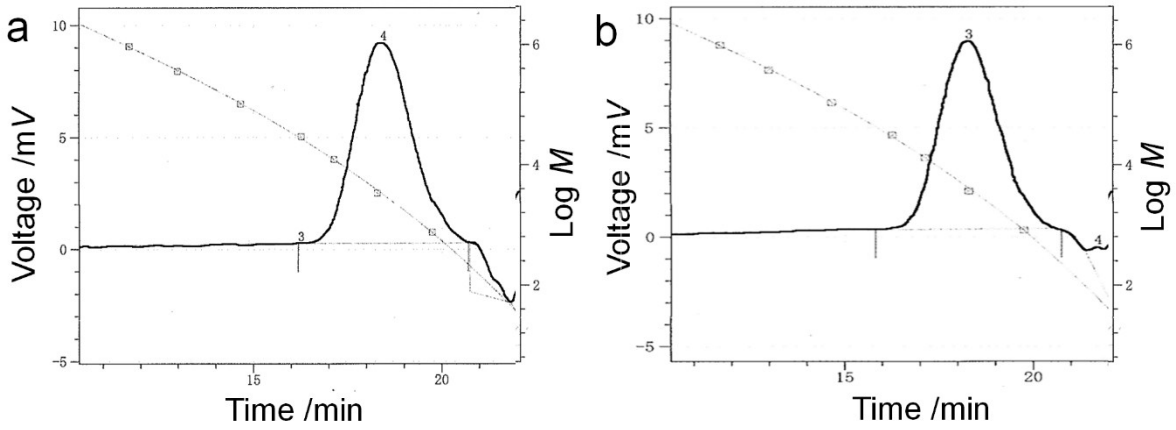

Figure S1. The GPC data of (a) VT21 and (b) VT51. The measured number-average molecular weight (M_n), M_w, and M_w/M_n of VT21 were 2340, 4149, and 1.77, respectively, while the M_n, M_w, and M_w/M_n of VT51 were 2770, 4995, and 1.80, respectively.

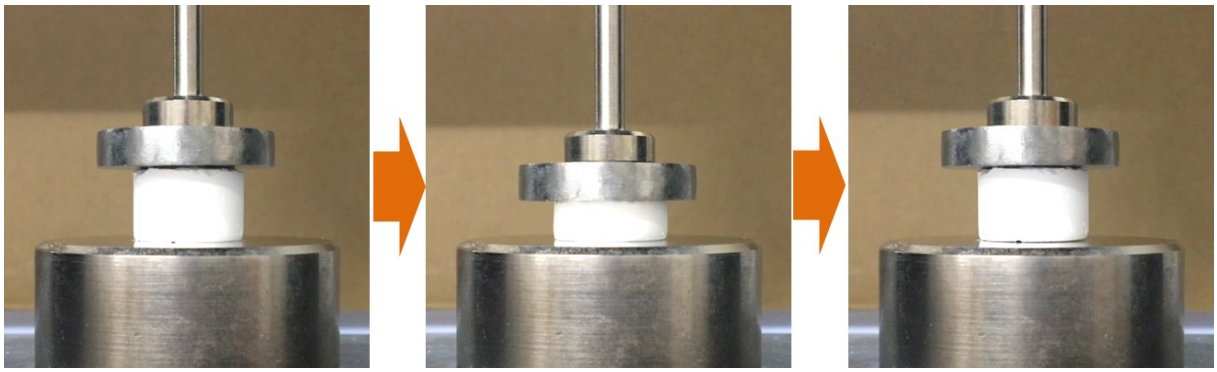

Figure S2. Photographs of a uniaxial compression−decompression test on VT11.

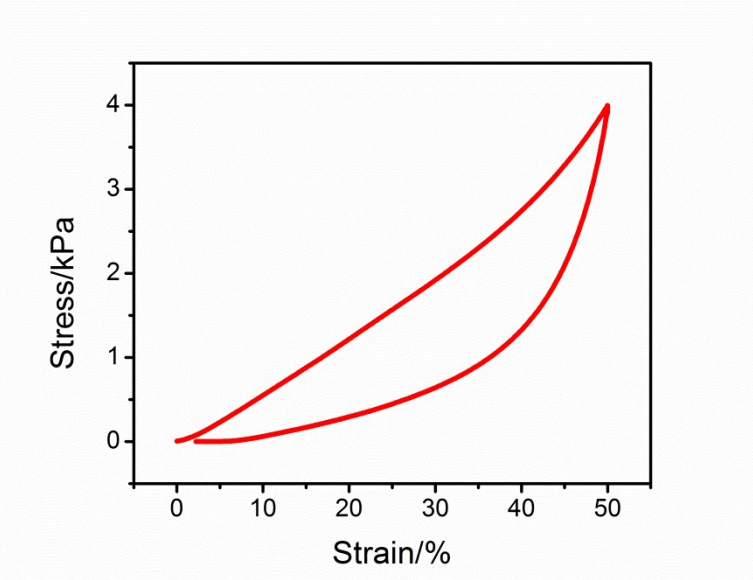

Figure S3. Stress−strain curves of a uniaxial compression−decompression test on VT11.

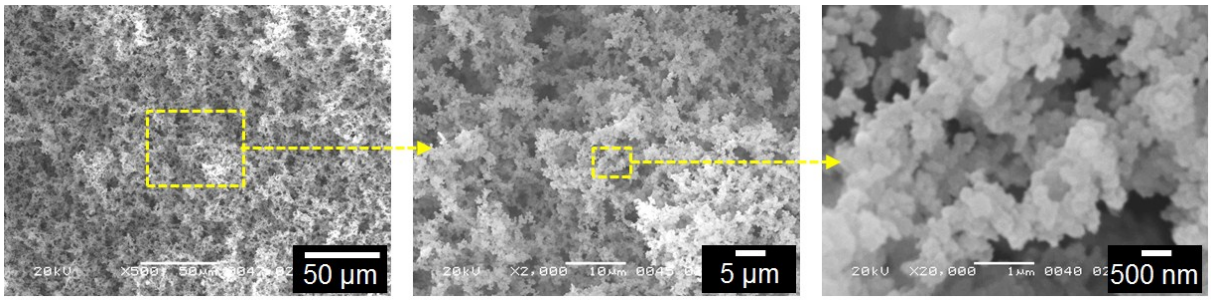

Figure S4. SEM images of VT21 after compression−decompression with 50% strain for 100 cycles.

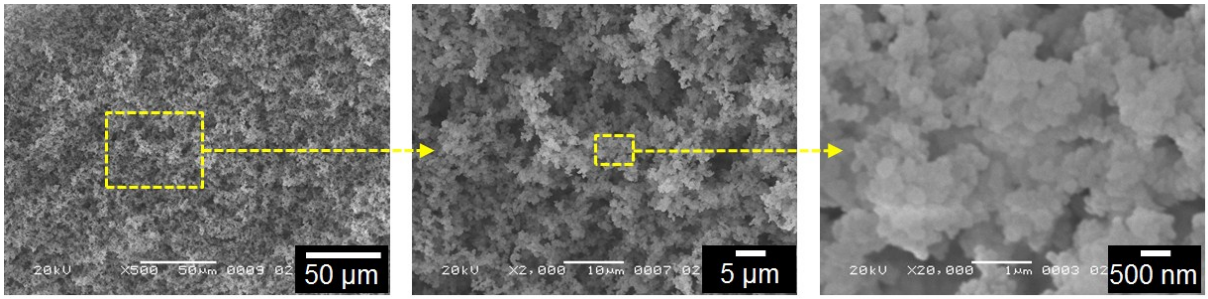

Figure S5. SEM images of VT21P after compression−decompression with 50% strain for 100 cycles.

Figure S6. Photographs of a three-point bending test on VT21.

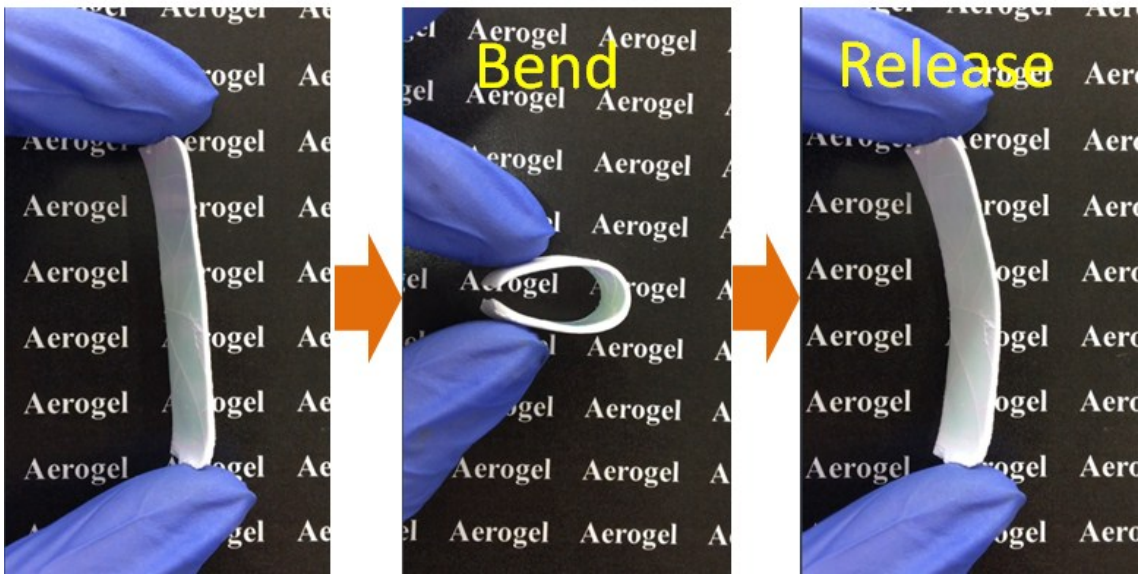

Figure S7. Photographs of a hand bending test on VT21

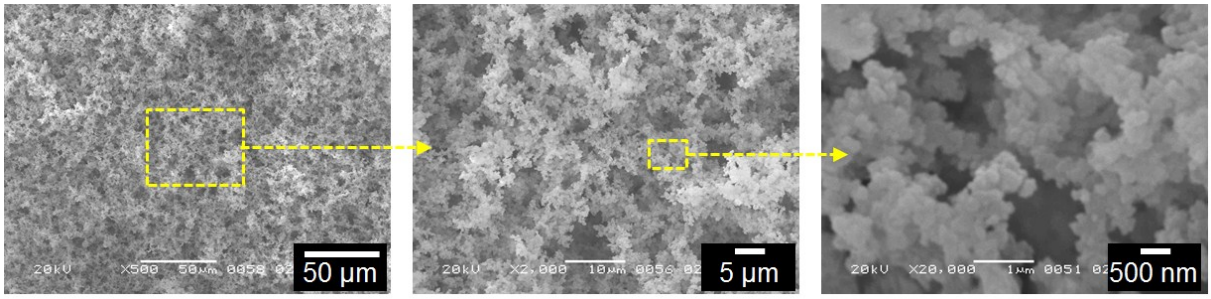

Figure S8. SEM images of VT21 after absorption for *n*-octane and drying for 10 cycles. Its morphology remains unchanged after 10 cycles.