Electronic Supplementary Material (ESI) for Journal of Materials Chemistry

Supporting Information

Conductivity Regulation of the Mixed-Valence Tetrathiafulvalene Nanowire/Poly(methyl methacrylate) Composites Using Heterogeneous Tetrathiafulvalene Derivatives

Kazuo Tanaka, Takuya Matsumoto, Fumiyasu Ishiguro, and Yoshiki Chujo*

Department of Polymer Chemistry, Graduate School of Engineering, Kyoto University
Katsura, Nishikyo-ku, Kyoto 615-8510, Japan

*To whom correspondence should be addressed: chujo@chujo.synchem.kyoto-u.ac.jp

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Table S1. Conductivities of the TTF/PMMA composite films with lower concentration (25 mol%) of TTF species[a]

TTF derivative	σ ($\times 10^{-3}$ S/cm)[b]
TTF	7.10 ± 2.2
DM	3.76 ± 4.6
BDHN	1.20 ± 1.3
DP	0.31 ± 0.2
TMT	–[c]

[a]Films 1–10 μm thick were cast on the glass plate, and conductivity σ was measured with four-probe method.

[b]The σ values represent the average of conductivity at five points in the three distinct films. The error represents an SD value.

[c]Under detectable level ($< 10^{-6}$).

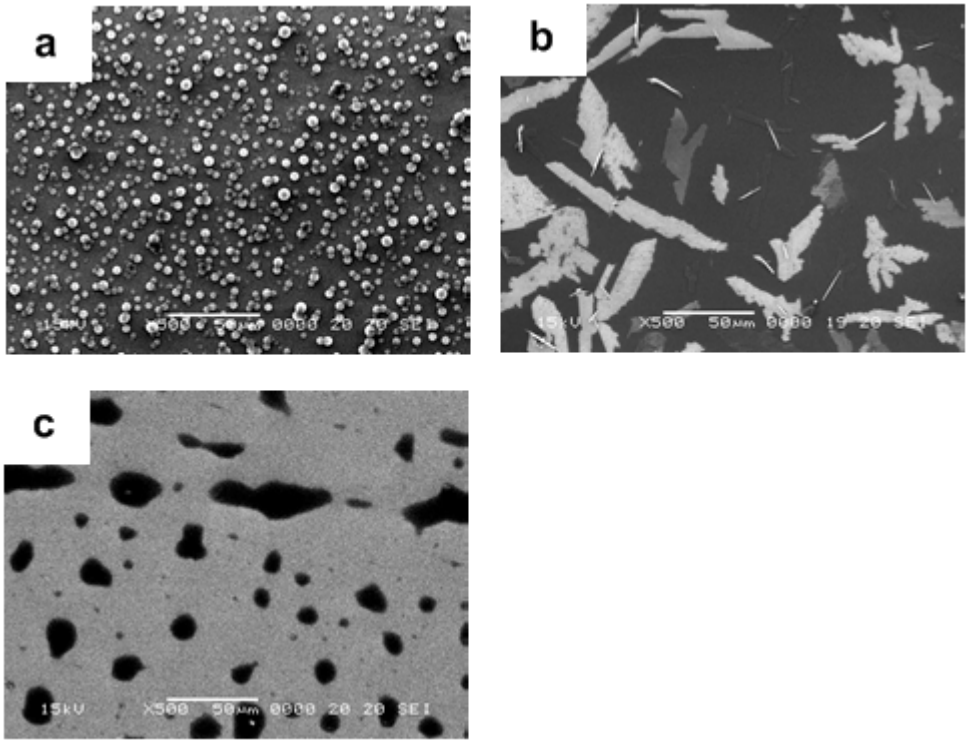

Figure S1. SEM images of the composite containing 15 mol % TTF salts with the (a) PS, (b) PMMA, and (c) PVP matrix. The cast films were obtained from the acetonitrile and dichloromethane solutions containing the neutral TTF and the TTF cation salts. Since the cast films were prepared under the preliminary conditions, the insufficient nanowire formations or the significant phase separation were obtained. All films showed the conductivity under the detectable level. The scale bars are 50 μm.