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Polyaniline Nanorods Blend with Cyanoresin

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Conducting polymers such as polyaniline (PANI), polypyrrole, poly (3,4-ethylenedioxythiophene) have been widely investigated because of their extensive applications in electronic industry such as secondary batteries, capacitors etc.[1-2] In general, PANI has excellent advantages with respect to synthesis, doping character, cost-effectiveness, environmental stability, and conducting polymer nano-structures are promising for high conductive materials[2,3]. However, the utilization of PANI has been limited because of its poor fusibility and processability. Therefore, to overcome these defects, conducting polymer blends consisting of PANI nanorods (PANI-NR) and cyanoresin were prepared by *in situ* polymerization. PANI-NR was synthesized by using the template free method[4] and PANI-NR/cyanoresin blends were prepared by the addition of cyanoresin/dimethylformamide (DMF) solutions to PANI-NR/DMF solutions. Its morphological state has been confirmed. Figure 1 shows the morphologies of the synthesized PANI-NR. The diameter and length of PANI-NR was approximately 120 nm and 600 nm, respectively. The conductivity of PANI-NR/cyanoresin blends was 10^{-3}~10^{-1} S/cm. The thermal stability of PANI-NR/cyanoresin blends was improved with increasing cyanoresin contents. The effect of dopant types and their blend compositions on the morphology and conductivity of PANI-NR/cyanoresin blends were investigated.

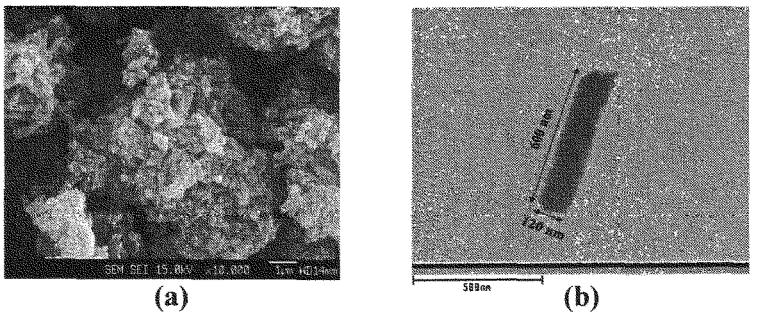

Figure 1. SEM(a) and TEM(b) images of the synthesized PANI-NR.

Reference

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