Short Communication

Electric Properties of Deformable Rubber/CNTs/*p*-Si Composites under Pressure

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Rubbing-in technology was used to fabricate the deformable CNT-*p*-Si-rubber nanocomposites. The effect of uniaxial compressive displacement (up to ~ 6% of the length of samples) and uniaxial pressure (up to 0.12 kgf/cm²) on the I-V characteristics of the samples were investigated. It was obtained that the I-V characteristics under the effect of displacement or pressure are shifted toward increasing currents at permanent applied voltages. The nonlinearity coefficients of the I-V characteristics slightly reduced due to displacement or pressure and increased with applied voltage. It was observed that the investigated composite samples' resistances crucially decreased with increase in compressive displacement or pressure. It may be, first of all, due to the decrease in distances between CNT particles in the composite under compression or pressure and the increase in the cross-section area of the samples, accordingly. The composite samples can be used as deformable and shocked-proof pressure and displacement sensors.

Keywords: rubbing-in technology, displacement, uniaxial pressure, non-linearity

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