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**Plasma polymer fluorocarbon thin films deposited by roll-to-roll sputtering**

Sung Hyun Kim, Tae-Woon Kang, Mac Kim, Jae Heung Lee and Sang-Jin Lee

Korea Research Institute of Chemical Technology, Republic of Korea

Carbon nanotube/polytetrafluoroethylene composite polymer targets (abbreviated as composite target) are proposed for use in the fabrication of plasma polymer fluorocarbon (abbreviated as PPFC) thin films using the mid-range frequency sputtering process. Large-area PPFC thin films were fabricated on roll-type PET substrate (polyethylene terephthalate, width 700 mm, thickness 100  $\mu\text{m}$ ) by a pilot-scale roll-to-roll sputtering system. The PPFC thin films exhibit an amorphous phase with a smooth surface and show a high water contact angle, optical transmittance and bendability. Mechanical property of PPFC thin films were studied using nanoindentation method and analyzed using X-ray photoelectron spectroscopy and Fourier transform infrared spectroscopy. As the carbon nanotube concentration in the composite target increases, a carbon cross-linked structure was formed which enhanced the film hardness and the modulus of the PPFC thin films.

**Biography**

Sung Hyun Kim has completed his Master course of Nano Fusion Technology in 2015 from Pusan National University. He is a Ph.D. student at the Korea Research Institute of Chemical Technology and Pusan National University.

wdy1332@kRICT.re.kr

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