

## 탄소나노튜브 기반 투명전도성 필름 및 이의 응용

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### Carbon Nanotube (CNT) based Transparent Conductive Films for Display Applications

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**Abstract** : The development of next generation displays such as flexible display is a major challenge. Most materials and processes in current flat panel display industry cannot be transferred to flexible substrates. Typically, indium tin oxide (ITO) thin films are brittle and need to be deposited at high temperature to achieve an optimal opto-electrical property, therefore ITO films cannot be used as a flexible electrode. Up to date, many alternative materials to ITO have been proposed such as conductive polymers, nanometals, solution deposited transparent conductive oxide(TCO) and carbon nanotubes(CNTs). CNT based transparent conductive films are fabricated on glass and polymer substrates. CNT thin films exhibit a sheet resistance ( $R_s$ ) of nearby  $10^3 \Omega/\text{sq}$  with a transmittance of around 80% on the visible light range, which is attributed by excellent dispersion and interaction among CNTs, solvents and polymeric binders. This talk will present the current studies, opto-electrical properties, design criteria and its applications for CNT-based transparent conductive films.

**Key words** : Carbon nanotubes, Transparent electrode, Conductive films, opto-electrical property