Effects of Buffer layers on the Growth of Well-Organized Carbon Nanotube Structures

김종석*, 모흐드 나짐[1], 장영운[2], 임익태[2]

전북대학교; [1]전북대학교 화학공학부;

[2]전북대학교 기계설계공학부

(js-kim@chonbuk.ac.kr*)

Carbon nanotube has been extensively studied for several decades due to its promising electrical, mechanical and thermal properties. But there are still difficulties in practical use when it is formed as composites with polymeric bulk materials because its property, particularly thermal conductivity, becomes very low when it is dispersed in the polymer. Recently, a lot of efforts have been made to use its good properties more efficiently by growing carbon nanotubes as well-organized shapes such as long, cylindrical pillars or brush-like dense forest. In this study, process conditions such as the Al2Ox buffer layer thickness before and after annealing are varied to examine their effects on the growth of the well-organized carbon nanotube structures. The buffer layer thickness after annealing is one of the factors to grow CNT at the height of millimeter scale. A buffer layer, usually a thin aluminum (Al) layer has been known for a good supporting layer for obtaining vertically aligned CNT forests. In this study, the thickness of the Al buffer layer before and after annealing is investigated to clearly show the effects of the buffer layer on the well aligned CNT growth.