

Responsible Production and Applications of Carbon Nanotubes ~Promis for the future~

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Carbon nanotubes have been attracted lots of attention from various fields of science and technology, because of their extraordinary physical and chemical properties due to the intrinsic nano-sized one-dimensional nature. It should be noted that various carbon nanotube-derived products have been developed, and thus their viability strongly depend on their large scale production by the most common CCVD process [1]. The hurdles in nanotube commercialization are considered to be the safety issue of carbon nanotubes [2-4]. By sharing the all informations on risks [4] and benefits of the materials with all the stakeholders, we are able to prove the carbon nanotubes to be the green and safe innovative materials, by the responsible productions and use. And further designing the safer nanostructure of CNT is becoming important. These are the promises for the future of CNT's as an inovative material for the 21st century.

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[2]A. Takagi et al. *J. Toxicol. Sci.* 33, 105 (2008).

[3]C. A. Poland, et al. *Nature Nanotechnology* 3, 423 (2008)

[4]CDC NIOSH, *Current Intelligence Bulletin 65: Occupational Exposure to Carbon Nanotubes and Nanofibers*, <http://www.cdc.gov/niosh/docs/2013-145/> (2013)