

**Carbon nanotubes for the development of amperometric biosensor**

*Garcia, A., Arzubiaga L., Muñoz R., Bilbao L. , Obieta I., Bustero I.*  
*INASMET FOUNDATION Mikeletegi Pasealekua, 2 E20009 (San Sebastian) Spain*  
[aigarcia@inasmnet.es](mailto:aigarcia@inasmnet.es)

Carbon nanotubes (CNT) have unique electronic properties that are suitable for the efficient electron transfer reactions when used as electrodes in biosensors. A high degree of purification and dispersion of the CNTs is needed for the introduction of this material as electrodes in biosensing devices.

Multi-wall carbon nanotubes (MWCNT) are synthesised by Chemical Vapour Deposition (CVD) at INASMET using Ni as catalyst. These pristine CNTs have metallic and amorphous carbon impurities that have to be removed. We have developed a purification method that includes acid treatment and air oxidative processes to achieve high purity CNTs. Structural characterization by Raman Scattering and Atomic Force Microscopy (AFM) and quantitative analysis by Inducted Coupled Plasma (ICP) and Thermogravimetric analysis (TGA) have shown CNTs with a purity degree of 95%.

Finally a good dispersion is necessary to derive profit from the potential properties of CNTs as bioelectrodes. We have tried surfactants, dispersants and also DNA wrapped methods to obtain a stable CNT solution for its use in biosensor electrodes.

**References:**

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