

## **Effect of catalyst calcination temperature on the synthesis of mwcnts-talc hybrid compound using CVD method**

### **Abstract**

Carbon nanotubes-talc (CNTs-talc) hybrid compound has been successfully synthesized via chemical vapour deposition (CVD) method. A gas mixture of methane/nitrogen ( $\text{CH}_4/\text{N}_2$ ) was used as the carbon source and nickel as the metal catalyst for the growth of CNT hybrid compound. Talc works as substrate or support material which is combined with nickel to form a complex metal-talc catalyst that will react with carbon source to produce the hybrid compound. To study the effect of different calcinations temperature, four different calcinations temperature, 300 °C (C-talc300), 500 °C (C-talc500), 700 °C (C-talc700) and 900 °C (C-talc900) were used. Among these four calcination temperatures for synthesis the multi-walled carbon nanotubes (MWCNTs), C-talc500 is the most optimum calcination temperature to perform catalytic decomposition by reacting in methane atmosphere at 800 °C to produce the CNT-talc hybrid compound.

**Keywords;** Calcinations, Chemical Vapor Deposition (CVD), Hybrid, Multiwalled Carbon Nanotubes (MWCNTs), Talc