

## ToT of CNTs synthesis by CCVD method

The high yield as well as purity of synthesized CNTs depends on the choice and developing the catalyst – support combination and hence also on synthesis conditions. Right kind of catalyst- support combination under the right synthesis conditions will give very high yield as well as high purity. So far many support shave been used as support and almost all transition metais (either alone or in combination) were used as catalyst. It should be noted that after the synthesis, removal of support from CNTs is one of the most challenging job because very often chemical route has been adopted for this removal which in turn damage the walls of CNTs and hence their electrical and in particular mechanical properties.

Hence there is a need to develop a suitable catalyst – support combination which under proper synthesis conditions will give very high yield and purity CNTs, easy to remove and also at the same time it should be simple and suitable for scaling up to larger levels.

Primary objective is to provide a suitable catalyst for high yield and high pure CNTs synthesis. The aim of the invention is to provide suitable catalyst – support combination for high yield and high pure CNTs synthesis by CCVD technique with simple reaction procedure and sound logical background behind the process. The method will provide a suitable catalyst for high yield and high pure CNTs synthesis. This will also provide suitable catalyst – support combination for high yield and high pure CNTs synthesis by CCVD technique with simple reaction procedure and sound logical background behind the process. As a result it will provide a optimized reaction parameters by CCVD route which in turn gives the confidence for high yield of CNTs and also the removal of support from CNTs in easy way without the damaging the wall strength of CNTs.

One Indian (DRDO) patent has been applied on the process / catalyst used for CNTs synthesis by CCVD method (Application No. **Application number 2228 / DEL / 2010**) and another Indian (DRDO) patent has been applied on the furnace designed used for CNTs synthesis by CCVD method (Application No. **Application number 27 / DEL / 2010**).