THE DEVELOPMENT OF THE PROCESS TO SYNTHESIZE CARBON NANOTUBES FROM BIOGAS

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Abstract

Carbon nanotubes are molecular-scale tubes of graphitic carbon with outstanding mechanical, electrical, chemical and thermal properties. This thesis explains a simple process has been developed to synthesize carbon nanotubes from biogas by the method of chemical vapor decomposition. In this process, Ni/SiO_2 was used as catalyst at 550^0C temperatures. The biogas was supplied to the reactor for one hour continuously. The final sample was investigated by means of scanning electron microscope (SEM).

The role of catalysts particle, reaction temperature and reaction mechanisms of methane decomposition in front of carbon dioxide are also discussed. Further, the design, material selection, fabrication and modification of the reactor also discussed in this thesis.

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List of Abbreviations

Abbreviation	Description
CNT	Carbon Nano Tube
CNTs	Carbon Nano Tubes
SWCNT	Single Walled Carbon Nano Tube
CVD	Chemical Vapour Decomposition
MWCNTs	Multi-Walled Carbon Nanotubes
TEOS	Tetra Ethyl Ortho Silicate
TIC	Temperature Indicating Controller
SEM	Scanning Electron Microscope
TEM	Transmission Electron Microscope

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