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Chemical Purification and Application of Carbon Nanotubes in the Preparation of Nano Shield

Project report submitted in partial fulfilment of the requirement for the degree of

BACHELOR OF ENGINEERING

In

CHEMICAL ENGINEERING

Of

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Chapter 1:

SYNOPISIS

The objective of Chemical Engineering Research Project is to check for chemical properties of Carbon Nanotubes for application requirements and utilize the purified CNT s in preparation of Nano Shields.

This project mainly involves in the selection of polymer used in the preparation of Nano Shield along with the carbon Nanotubes. The properties of the polymers are studied so as to suit for the Nano Shield. The selected polymers are further tested to choose the best among the selected polymers.

This also includes in the selection of the rubber material for the preparation of the mould that has to be sandwiched between the selected polymer layers. There are various tests conducted to test the strength of the various composite layers prepared from polymer and rubber.

The carbon nanotubes that have to be used in the Nano Shield preparation is first selected based on the required properties and chemical purification is done in order to remove carboxyl and hydroxyl groups present in low quantities in CNTs.

The carbon nanotubes after purification are used in between the polymer and rubber layers. This prepared mould is tested further for the strength and compressibility factor.

Thus prepared Nano Shield is compared with the BIS standards to reach the necessary requirements to be used as body armor.