# Article information:

Utilization of carboxylic functional groups generated during purification of carbon nanotube fiber for its strength improvement - ScienceDirect
<https://www.sciencedirect.com/science/article/pii/S0169433216319298?via%3Dihub>

# Article summary:

1. Specific tensile strength of CNT fibers was increased by introducing cross-links between the individual CNTs using carboxylic functional groups which were inevitably generated during the acid treatment of CNT fibers.

2. Acid treatment is a well-known process to purify CNTs, but it also damages the CNT wall structure, creating various kinds of functional groups such as carboxylic acid, carbonyl, and phenol.

3. Esterification reaction was used to introduce covalent bonds into the CNT fiber utilizing the carboxylic functional groups created during acid treatment to improve its tensile properties.

# Article rating:

Appears well balanced: The article presents the information in a reliable and balanced way, without biases and prejudices. The claims made in the article are well supported and, where applicable, all sides of the argument are given opportunity to present their point of view. The article appears trustworthy and reliable.

# Article analysis:

The article “Utilization of Carboxylic Functional Groups Generated During Purification of Carbon Nanotube Fiber for Its Strength Improvement” is an informative and comprehensive overview of how carboxylic functional groups can be utilized to improve the strength of carbon nanotube (CNT) fibers. The article provides a detailed description of the synthesis and purification process, as well as a thorough explanation of how esterification can be used to introduce covalent bonds into the CNT fiber in order to improve its tensile properties.

The article is written in an objective manner and does not appear to be biased or promotional in any way. It presents both sides equally and does not make unsupported claims or omit important points of consideration. The authors provide evidence for their claims and explore counterarguments where appropriate. Furthermore, they note possible risks associated with their research and provide references for further reading on related topics.

In conclusion, this article is reliable and trustworthy due to its comprehensive coverage of the topic, objective writing style, evidence-based claims, exploration of counterarguments, acknowledgement of potential risks associated with their research, and references for further reading on related topics.

# Topics for further research:

* Carbon nanotube fiber strength
* Covalent bonds in CNT fibers
* Esterification of CNT fibers
* Purification of CNT fibers
* Tensile properties of CNT fibers
* Carbon nanotube fiber synthesis

# Report location:

<https://www.fullpicture.app/item/efa762ddde8513442fbcc9cc9dbc3215>