

Purification of CNT fiber by acid Treatment

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Carbon nanotubes (CNTs) have been in the spotlight in nanotechnology field for their superior electrical and mechanical property. And CNT fiber is one of the solutions for supporting CNT's short length which is important for extensive applications. Directly spun CNT fiber is main method for producing CNT fiber but CNT fiber made by this way have many impurities such as amorphous carbon and catalysts. Removing these unwanted materials is crucial step for obtaining high-quality CNT fiber with great electrical and mechanical properties. For CNT fiber purification, different kinds of acid treatments were conducted. Four kinds of acids were used in this experiment, and each acid showed different purification ability. Also, this acid treatment can 1) introduce functional group such as carboxyl, which would be available for further chemical reaction and 2) affect CNT fiber's mechanical strength.