

# Micromechanical Characterization of Oxidized Carbon Nanotube and Graphene Oxide Papers

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In the present work the endurance of graphene oxide and oxidized MWCNT papers on tensile stress is tested. Graphite oxidation and exfoliation [1] and  $\text{KMnO}_4$  reaction [2] of MWCNTs are employed to produce GO and oxidized carbon nanotubes respectively. Hybrid GO/OMWCNT papers that exhibit GO weight percentage that ranges from 0 wt% to 100 wt% are fabricated by vacuum filtration and are subjected to tensile testing. Results across the whole sample range show a general increase in stress at failure for higher GO contents. The increasing stiffness of the samples tested is indicative of the formation of hydrogen bonds between the hydroxyl and carboxylic acid functionalities [3] of the decorated nanoparticles brought on by the more ordered stacking of GO nanoparticles.

## REFERENCES

- [1] J. Zhao, Y. Zhu, F. Pan, G. He, C. Fang, K. Cao, R. Xing, Z. Jiang, J. Memb. Sci. 487 (2015) 162–172.
- [2] H. Hiura, T.W. Ebbesen, K. Tanigaki, Adv. Mater. 7 (1995) 275–276.
- [3] J.D. Núñez, A.M. Benito, S. Rouzière, P. Launois, R. Arenal, P.M. Ajayan, W.K. Maser, Chem. Sci. 8 (2017) 4987–4995.

## FIGURES

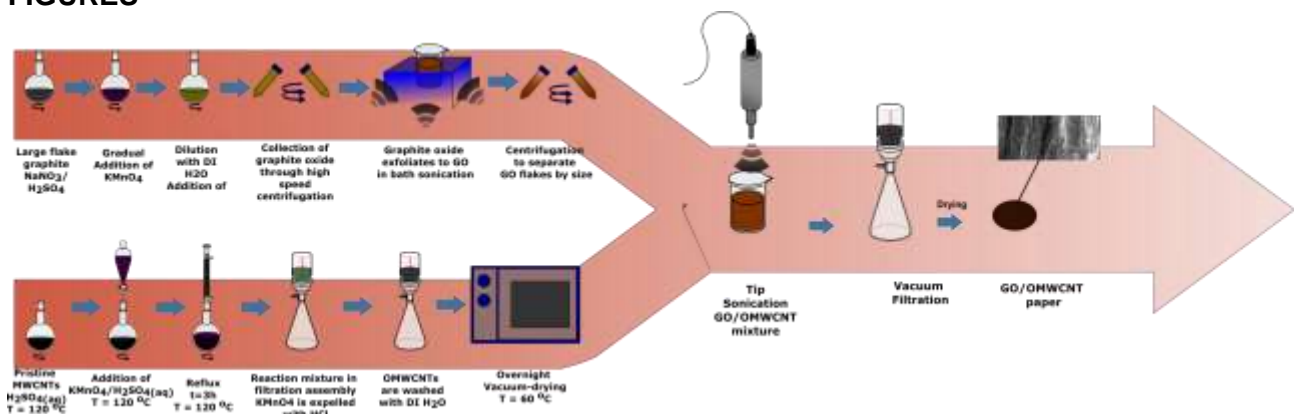


Figure 1: Insert caption to place caption below figure (Arial 10)

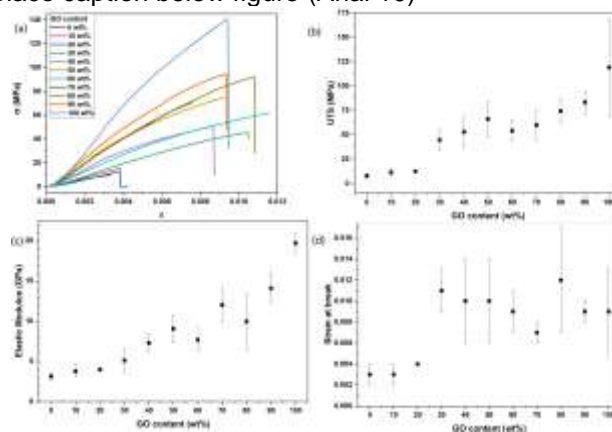


Figure 2: Insert caption to place caption below figure (Arial 10)