

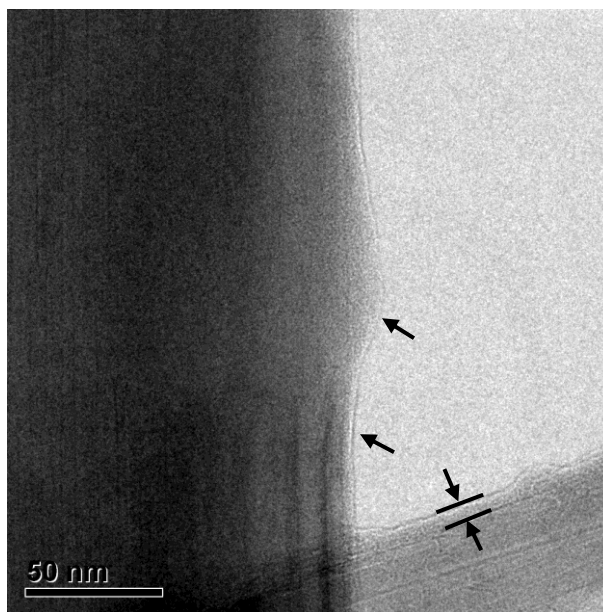
## Supporting Information

# High-intensity ultrasonication modification of vapor grown carbon fibers with poly(vinyl alcohol) for the preparation of high strength composites by simple water casting

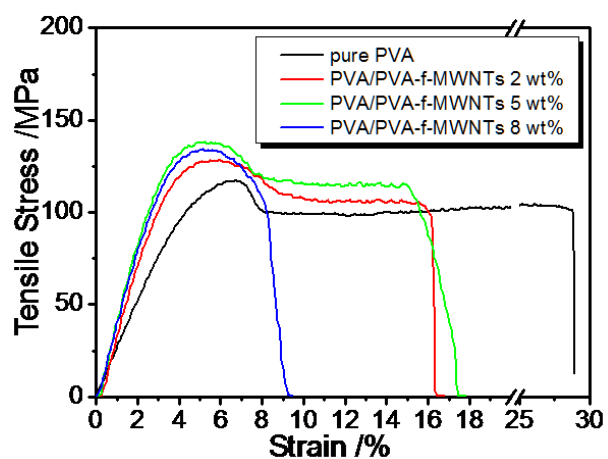
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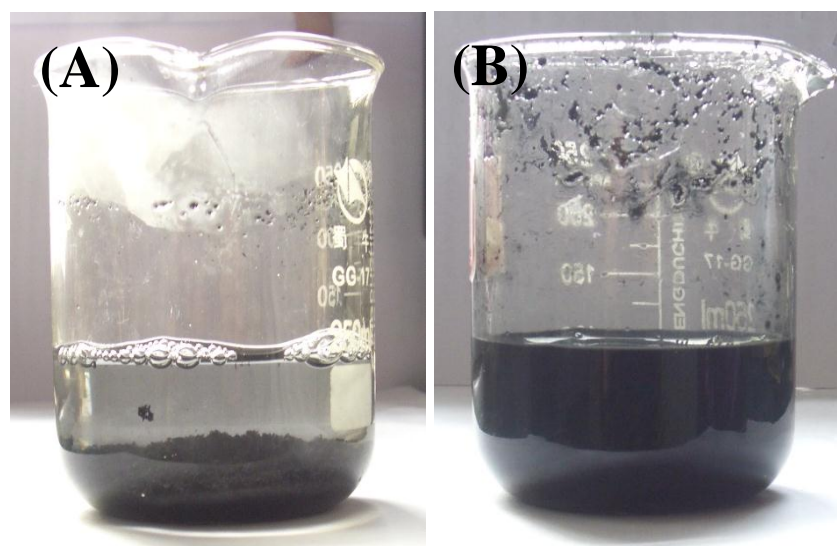
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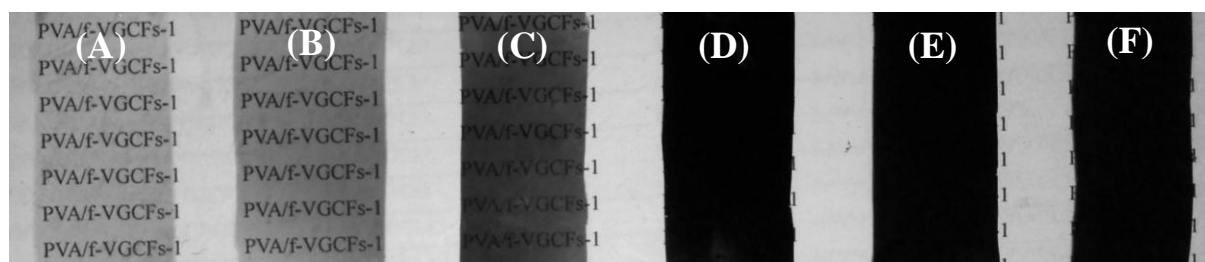
**Figure S1.** Typical HR-TEM image of f-VGCFs-2 showing that a thin layer polymer is attached to the surface of VGCFs.



**Figure S2.** Typical stress-strain curves of PVA/f-MWNT nanocomposite films showing moderately enhanced mechanical properties strength.



**Figure S3.** Photographs of (A) the mixture of PVA and c-VGCFs, and (B) the mixture of PVA and f-VGCFs-1 in water, after being stocked for about two weeks. It was found that c-VGCFs precipitated from the mixture, while f-VGCFs-1 suspended stably in water.



**Figure S4.** Photographs of PVA/f-VGCFs-1 composite films with the f-VGCFs-1 content of (A) 0.5 wt%, (B) 1 wt%, (C) 2wt%, (D) 5 wt%, (E) 8 wt% and (F) 10 wt%. The composite films are uniform and no obvious agglomerates of f-VGCFs-1 are observed in the films even at low filler contents. The thickness of the films are about 40  $\mu\text{m}$ .